pennsylvania
DEPARTMENT OF EDUCATION

The Pennsylvania System of School Assessment

Mathematics
Item and Scoring Sampler

2015–2016
Grade 3

Pennsylvania Department of Education Bureau of Curriculum, Assessment, and Instruction—September 2015

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INTRODUCTION

General Introduction

The Pennsylvania Department of Education provides districts and schools with tools to assist in delivering focused instructional programs aligned with the Pennsylvania Core Standards (PCS). These tools include Academic Standards, Assessment Anchor documents, assessment handbooks, and content-based item and scoring samplers. This Item and Scoring Sampler is a useful tool for Pennsylvania educators in preparing local instructional programs. It can also be useful in preparing students for the statewide assessment.

Pennsylvania Core Standards (PCS)

This sampler contains examples of test questions that are aligned to the new Pennsylvania Core Standards-based 2013 PSSA Assessment Anchors and Eligible Content. The Mathematics, Reading, and Writing PSSA transitioned to PCS-based operational Mathematics and English Language Arts assessments starting with the spring 2015 PSSA administration.

The 2013 PCS-aligned Assessment Anchor and Eligible Content documents are posted on this portal:

- *www.education.pa.gov* [Hover over "K–12," select "Assessment and Accountability," and select "Pennsylvania System of School Assessment (PSSA)." Then select "Assessment Anchors" from the "Other Materials" list on the right side of the screen.]

What Is Included

This sampler contains test questions (items) that have been written to align to the Assessment Anchors that are based on the Pennsylvania Core Standards (PCS). The test questions provide an idea of the types of items that will appear on an operational, PCS-based PSSA. Each sample test question has been through a rigorous review process to ensure alignment with the Assessment Anchors.

Purpose and Uses

The items in this sampler may be used as examples for creating assessment items at the classroom level, and they may also be copied and used as part of a local instructional program.[1] Classroom teachers may find it beneficial to have students respond to the open-ended items in this sampler. Educators can then use the sampler as a guide to score the responses either independently or together with colleagues within a school or district.

Item Format and Scoring Guidelines

The multiple-choice (MC) items have four answer choices. Each correct response to an MC item is worth one point.

Each open-ended (OE) item is designed to take approximately ten to fifteen minutes to complete. During the administration of the PSSA, students are given additional time as necessary to complete the test items. Each OE item in mathematics is scored using an item-specific scoring guideline based on a 0–4 point scale. In this sampler, every item-specific scoring guideline is combined with examples of student responses that represent each score point to form a practical, item-specific scoring guide.

The sampler also includes the *General Description of Scoring Guidelines for Mathematics Open-Ended Questions* that students will have access to during a PSSA mathematics administration. The general description of scoring guidelines can be distributed to students for use during local assessments and can also be used by educators when scoring local assessments.[1]

[1] The permission to copy and/or use these materials does not extend to commercial purposes.

Item Alignment

All PSSA items are aligned to statements and specifications included in the *Assessment Anchors and Eligible Content Aligned to the Pennsylvania Core Standards*. The mathematics content, process skills, directives, and action statements included in the PSSA mathematics questions align with the Assessment Anchor Content Standards. The Eligible Content statements represent the limits of the content of the mathematics questions.

Testing Time and Mode of Testing Delivery for the PCS-Based PSSA

The PSSA is delivered in traditional paper-and-pencil format as well as in an online format. The estimated time to respond to a test question is the same for both methods of test delivery. During an official testing administration, students are given additional time as necessary to complete the test questions. The following table shows the estimated response time for each item type.

Item Type	MC	OE
Estimated Response Time (in minutes)	2	10 to 15

MATHEMATICS REPORTING CATEGORIES

The Assessment Anchors are organized into four classifications, as listed below.

- A = Numbers and Operations
- B = Algebraic Concepts
- C = Geometry
- D = Data Analysis and Probability

These four classifications are used throughout the grade levels. In addition to these classifications, there are five Reporting Categories for each grade level. The first letter of each Reporting Category represents the classification; the second letter represents the Domain as stated in the Common Core State Standards for Mathematics. Listed below are the Reporting Categories for Grade 3.

- A-T = Numbers and Operations in Base Ten
- A-F = Numbers and Operations—Fractions
- B-O = Operations and Algebraic Thinking
- C-G = Geometry
- D-M = Measurement and Data

Examples of multiple-choice and open-ended items assessing these categories are included in this booklet.

GENERAL DESCRIPTION OF SCORING GUIDELINES FOR MATHEMATICS OPEN-ENDED QUESTIONS

4 – The response demonstrates a *thorough* understanding of the mathematical concepts and procedures required by the task.

The response provides correct answer(s) with clear and complete mathematical procedures shown and a correct explanation, as required by the task. Response may contain a minor "blemish" or omission in work or explanation that does not detract from demonstrating a *thorough* understanding.

3 – The response demonstrates a *general* understanding of the mathematical concepts and procedures required by the task.

The response and explanation (as required by the task) are mostly complete and correct. The response may have minor errors or omissions that do not detract from demonstrating a *general* understanding.

2 – The response demonstrates a *partial* understanding of the mathematical concepts and procedures required by the task.

The response is somewhat correct with *partial* understanding of the required mathematical concepts and/or procedures demonstrated and/or explained. The response may contain some work that is incomplete or unclear.

1 – The response demonstrates a *minimal* understanding of the mathematical concepts and procedures required by the task.

0 – The response has no correct answer and *insufficient* evidence to demonstrate any understanding of the mathematical concepts and procedures required by the task for that grade level.

Response may show only information copied from the question.

DESCRIPTION OF SAMPLE QUESTIONS

The mathematics multiple-choice questions begin on page 6. Each question is preceded by the Assessment Anchor and Eligible Content coding to which it aligns. Incorrect answer options are followed by the "rationale" which supports the student's response. All correct answer options are indicated by an asterisk (*).

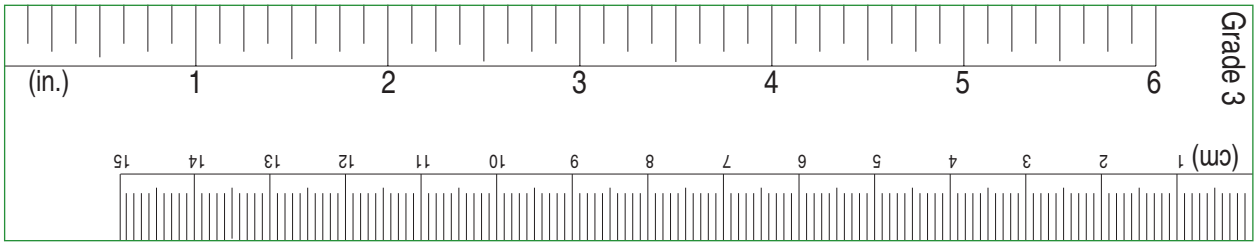
Five open-ended questions follow the multiple-choice questions. Each open-ended question includes question-specific scoring guidelines and examples of student responses with scores and annotations.

Since the PSSA is delivered in both paper-and-pencil and online formats, OE items of each method of test delivery are included in this sampler. The online OE sample items are presented as screen shots in a landscape orientation in order to best approximate the view of a computer monitor. The examples of student responses that follow the online OE sample items are also presented as screen shots.

Since students are not permitted to use a calculator on the grade 3 PSSA, all questions on the grade 3 sampler are to be solved without the use of a calculator. Scratch paper may be used in solving all questions, and a ruler similar to that shown below should be used to answer question number 40.

GRADE 3 RULER

The ruler shown below is not intended to be used to measure. It has been included as a representation of the rulers that will be provided for students when they take the test. Due to differences in printers, the ruler and measurement questions may not accurately reproduce to scale.



Directions: On the following pages are the Mathematics questions.

- You may not use a calculator on this test.
- You may need a ruler for question(s) on this test.

Directions for Multiple-Choice Questions:

Some questions will ask you to select an answer from among four choices.

For the multiple-choice questions:

- First solve the problem on scratch paper.
- Choose the correct answer and record your choice in the booklet.
- If none of the choices matches your answer, go back and check your work for possible errors.
- Only one of the answers provided is the correct response.

Directions for Open-Ended Questions:

Some questions will require you to write your response.

For the open-ended questions:

- These questions have more than one part. Be sure to read the directions carefully.
- You cannot receive the highest score for an open-ended question without completing all tasks in the question. For example, if the question asks you to show your work or explain your reasoning, be sure to show your work or explain your reasoning in the space provided.
- If the question does **not** ask you to show your work or explain your reasoning, you may use the space provided, but only those parts of your response that the question specifically asks for will be scored.
- Write your response in the appropriate location within the response box in the booklet. Some answers may require graphing, plotting, labeling, drawing, or shading. If you use scratch paper, be sure to transfer your final response and any needed work or reasoning to the booklet.

MULTIPLE-CHOICE QUESTIONS

A-T.1.1

1. Carla has a list of three numbers.

- Carla's numbers are in order from **least** to **greatest**.
- The first number in her list has the **least** tens.
- Every number in her list has **fewer** tens than ones.

Which list of numbers could be Carla's list?

Ⓐ 125 146 153 *does not realize that 153 has fewer ones than tens*

Ⓑ 127 145 234 *

Ⓒ 158 176 245 *ignores that the second number has more tens than ones*

Ⓓ 168 235 224 *does not realize that the numbers are not listed from least to greatest*

A-T.1.1.3
A-T.1.1.1

2. Mrs. Jackson has 47 boxes of crayons.

There are 8 crayons in each box.

To estimate the total number of crayons, she uses the steps shown below.

- round 47 to the nearest ten
- multiply the new number by 8

What is Mrs. Jackson's estimate of the total number of crayons?

Ⓐ 320 *rounds 47 down to 40*

Ⓑ 400 *

Ⓒ 450 *thinks 5 x 8 = 45, not 40*

Ⓓ 580 *adds the 8 to 50 and then puts a 0 on the end*

A-T.1.1.3
A-T.1.1.1

3. George bought 9 cases of bottled water.

Each case had 18 bottles of water in it.

To estimate the number of bottles of water he bought, George rounded 18 to the nearest ten and then multiplied that number by 9.

What is George's estimate of the number of bottles of water he bought?

Ⓐ 90 *rounds 18 down to 10*

Ⓑ 180 *

Ⓒ 209 *rounds correctly but then appends the 9 to the 20*

Ⓓ 290 *rounds correctly but then adds the 20 and 9 and puts a 0 on the end*

A-T.1.1.3
A-T.1.1.2

4. Kelly is planting groups of seeds.

She places 4 seeds into each group.

She plants 22 groups of carrot seeds and 38 groups of lettuce seeds.

How many total seeds does Kelly plant?

Ⓐ 200 *22 + 38 and gets 50, not carrying the 1*

Ⓑ 240 *

Ⓒ 300 *thinks 6 x 4 = 30, not 24*

Ⓓ 640 *adds 60 and 4 and then appends a 0*

A-T.1.1.4
A-T.1.1.1

5. Three students were comparing how many times they each jumped on a trampoline.

Jorge jumped 345 times.

Keisha jumped 356 times.

LeVar jumped more times than Jorge and fewer times than Keisha.

When each student's total was rounded to the nearest hundred, Jorge's total and LeVar's total were the same.

Which value could be the number of times LeVar jumped on the trampoline?

Ⓐ 305 *picks a number that rounds correctly but is not greater than 345*

Ⓑ 347 *

Ⓒ 350 *thinks 350 rounds down, not up*

Ⓓ 362 *thinks 362 < 356 because of the 2 in the ones place*

A-T.1.1.4
A-T.1.1.2

6. The table below shows the number of loaves of bread baked at a bakery on three days.

Bread Baked

Day	Loaves Baked in the Morning	Loaves Baked in the Afternoon
Monday	302	636
Tuesday	78	511
Wednesday	410	316

Which list shows the days in order of total number of loaves of bread baked from **least** to **greatest**?

Ⓐ Monday Tuesday Wednesday *days in week order*

Ⓑ Tuesday Monday Wednesday *morning only*

Ⓒ Wednesday Tuesday Monday *afternoon only*

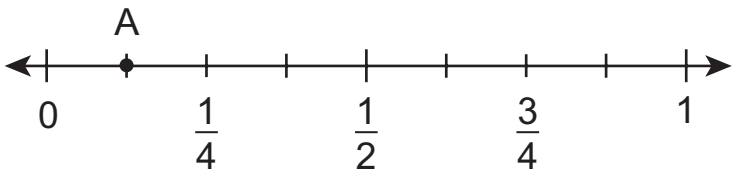
Ⓓ Tuesday Wednesday Monday *

A-F.1.1.2

7. In Sierra's third-grade class, $\frac{3}{8}$ of the students are boys.

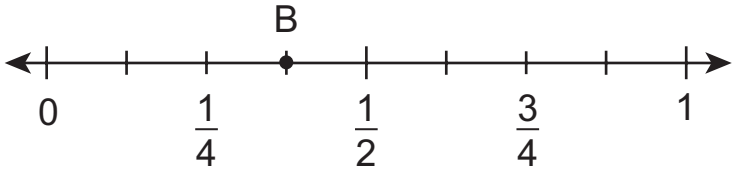
Which number line has a point on the fraction of the students that are boys?

Ⓐ



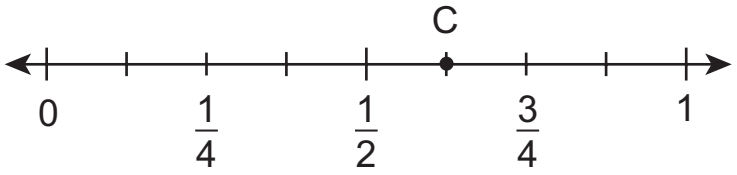
knows 3/8 is less than 1/2 but not able to compare to 1/4

Ⓑ



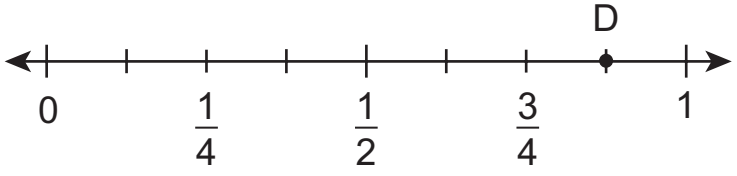
*

Ⓒ



moves 3 tick marks from the wrong end of the number line

Ⓓ



thinks 3/8 is greater than 3/4 because 8 is greater than 4

A-F.1.1.5

8. Bill and Cindy ate some pieces from the same pie.

Bill ate $\frac{3}{8}$ of the pie.

Cindy ate $\frac{1}{8}$ of the pie.

Which statement is true?

Ⓐ Bill ate more pie than Cindy.
*

Ⓑ Cindy ate more pie than Bill.

confuses fraction comparison rules: thinks fractions with the smaller numerator are greater

Ⓒ Bill and Cindy ate the whole pie.

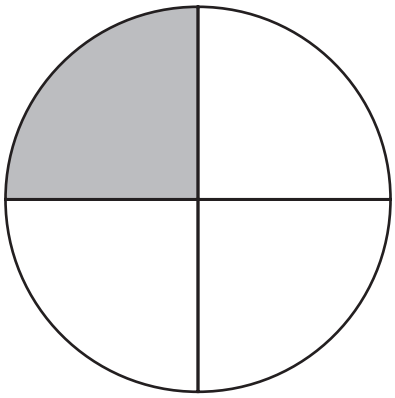
thinks each person ate half the pie

Ⓓ Bill and Cindy ate the same amount of pie.

thinks the fractions are equal since the denominators are the same

A-F.1.1.1
A-F.1.1.3

9. Fatima drew the figure shown below and shaded part of it.



Which fraction is equal to the amount Fatima shaded?

Ⓐ $\frac{2}{10}$ *miscounts and thinks 1/5 is shaded*

Ⓑ $\frac{2}{8}$ *

Ⓒ $\frac{2}{6}$ *ratio equivalent to 1 shaded and 3 unshaded parts*

Ⓓ $\frac{3}{1}$ *ratio of white to shaded*

A-F.1.1.3
A-F.1.1.1

10. There are 8 players on a basketball team.

There are 4 girls on the team.

What fraction of the players on the team are girls?

Ⓐ $\frac{1}{5}$ *incorrect simplification of fraction, subtracts 3 from numerator and denominator*

Ⓑ $\frac{1}{4}$ *incorrect simplification of fraction, divides numerator by 4 and denominator by 2*

Ⓒ $\frac{1}{3}$ *incorrect naming of original fraction, 4/12 (part/part+whole)*

Ⓓ $\frac{1}{2}$ *

A-F.1.1.3
A-F.1.1.1

11. Lou bought 6 doughnuts.

There were 2 doughnuts with sprinkles.

Which fraction represents the doughnuts Lou bought that had sprinkles?

Ⓐ $\frac{1}{5}$ *starts with 2/6 and subtracts 1 from numerator and denominator*

Ⓑ $\frac{1}{3}$ *

Ⓒ $\frac{2}{4}$ *uses the number of unsprinkled doughnuts for the denominator*

Ⓓ $\frac{6}{10}$ *starts with 2/6 and adds 4 to the numerator and denominator*

B-O.1.1.2

12. A pet store has a total of 24 fish tanks.

A worker at the pet store puts the fish tanks in rows.

There are 6 fish tanks in each row.

The expression shown below can be used to find the number of rows.

$$24 \div 6$$

Which sentence about the rows of fish tanks is true?

Ⓐ There are 4 rows of fish tanks. *

Ⓑ There are 6 rows of fish tanks. *uses the divisor as the number of rows*

Ⓒ There are 8 rows of fish tanks. *divides incorrectly*

Ⓓ There are 24 rows of fish tanks. *thinks the dividend represents the number of rows, not the total number of tanks*

B-O.1.2.1

13. Brent gave 8 colored pencils to each of his 4 friends.

Which number sentence can be used to find the total number of colored pencils (☐) Brent gave to his friends?

Ⓐ $8 + 4 = \square$ *uses addition*

Ⓑ $8 - 4 = \square$ *uses subtraction*

Ⓒ $8 \times 4 = \square$ *

Ⓓ $8 \div 4 = \square$ *uses division*

B-O.1.2.1

14. Kayla has 12 seeds.

She plants an equal number of seeds in each of 4 pots.

How many seeds did Kayla plant in each pot?

Ⓐ 3 *

Ⓑ 8 *subtracts*

Ⓒ 16 *adds*

Ⓓ 48 *multiplies*

B-O.1.2.2

15. Jill puts 24 brownies onto ☐ plates.

She put 4 brownies onto each plate.

The number sentence below can be used to find how many plates Jill uses.

$$24 \div \square = 4$$

How many plates (☐) does Jill use for brownies?

Ⓐ 6 *

Ⓑ 8 *knows 8 is a factor of 24*

Ⓒ 20 *24 – 4*

Ⓓ 28 *24 + 4*

B-O.2.1.2
A-T.1.1.3

16. There are 3 gorillas living in a zoo.

Each gorilla eats 40 pounds of food each day.

The expression $3 \times 7 \times 40$ represents the total amount of food, in pounds, the 3 gorillas eat in one week.

Which expression also represents the total amount of food, in pounds, the 3 gorillas eat in one week?

Ⓐ 3×47 *adds instead of multiplies*

Ⓑ 7×43 *adds instead of multiplies*

Ⓒ 28×40 *error in multiplication*

Ⓓ 120×7 *

B-O.2.1.2
B-O.2.1.1

17. There are 4 tables in Cleo's classroom.

She puts 2 packages of crayons on each table.

Each package has 8 crayons.

Cleo finds the total number of crayons on the tables by multiplying $4 \times 2 \times 8$.

Which expression shows another way Cleo could find the total number of crayons on the tables?

Ⓐ $4 + 2 + 8$ *uses addition symbol instead of multiplication symbol*

Ⓑ $4 \times 8 + 2$ *applies commutative property, but with addition symbol*

Ⓒ $2 \times 4 \times 8$ *

Ⓓ $2 \times 4 + 8$ *applies commutative property, but with addition symbol*

B-O.2.2

18. Joey has 27 toy cars.

He puts an equal number of cars on each of the 3 shelves in his room.

He uses division to find the numbers of cars on each shelf.

Which number sentence shows a way Joey could find the number of cars on each shelf?

Ⓐ $3 + ? = 27$ *uses addition instead of multiplication*

Ⓑ $3 \times ? = 27$ *

Ⓒ $3 + 27 = ?$ *adds the numbers given in the stem*

Ⓓ $3 \times 27 = ?$ *uses multiplication, but incorrect placement of numbers*

B-O.2.2.1

19. There are 6 ponies for children to ride at the fair.

In one hour, the ponies gave a total of 42 rides.

Each pony gave the same number of rides.

The equation below shows how to find the number of rides (☐) each pony gave.

$$42 \div 6 = \square$$

Which equation shows another way to determine how many rides (☐) each pony gave?

Ⓐ $42 - \square = 6$ *subtracts*

Ⓑ $6 + \square = 42$ *adds*

Ⓒ $\square \div 42 = 6$ *reverses 42 and the unknown factor*

Ⓓ $6 \times \square = 42$ *

B-O.3

20. Eva buys 3 bags of balloons.

There are 4 red balloons and 5 blue balloons in each bag.

Which expression shows how many red and blue balloons Eva buys?

Ⓐ $3 + 4 + 5$ *only uses addition*

Ⓑ $3 \times 4 \times 5$ *only uses multiplication*

Ⓒ $3 + 4 \times 3 + 5$ *uses addition and multiplication but in incorrect locations*

Ⓓ $3 \times 4 + 3 \times 5$ *

B-O.3.1

21. A bathtub is filled with 50 gallons of water.

Each gallon of water weighs between 8 and 9 pounds.

Which weight, in pounds, is **closest** to the weight of the water in the bathtub?

Ⓐ 42 — *place value error in multiplying*

Ⓑ 420 *

Ⓒ 4,200 — *place value error in multiplying*

Ⓓ 42,000 — *place value error in multiplying*

B-O.3.1.2

22. Ed picked ☐ baskets of berries.

Jasmine picked 2 more baskets of berries than Ed picked.

Ed and Jasmine picked a total of 8 baskets of berries.

Which equation can be used to find the number of baskets (☐) Ed picked?

Ⓐ ☐ + 2 = 8 — *uses 2 for total number of baskets picked by Jasmine instead of 2 more than "square"*

Ⓑ ☐ × 2 = 8 — *same number of baskets picked by each*

Ⓒ ☐ + ☐ + 2 = 8 *

Ⓓ ☐ + ☐ × 2 = 8 — *wrong operation, multiplies for 2 more than "square"*

B-O.3.1.2
B-O.3.1.1

23. Carlos volunteers ☐ days at the library each month.

In March, he volunteered 3 extra days at the library.

In January, February, and March, Carlos volunteered a total of 39 days at the library.

Which pair of equations shows the number of days (☐) Carlos volunteers each month?

Ⓐ $3 \times \square + 3 = 39$
$\square = 12$ *

Ⓑ $3 \times \square = 39$
$\square = 13$ *ignores the 3 extra days*

Ⓒ $3 \times \square - 3 = 39$
$\square = 14$ *subtracts the 3 extra days*

Ⓓ $3 + \square = 39$
$\square = 36$ *finds the total number of regular days*

B-O.3.1.2
B-O.3.1.1

24. Last year, José subscribed to 4 different magazines.

He received 6 issues of each magazine.

He also bought 7 issues of other magazines at a bookstore.

Which pair of equations shows the total number of magazine issues (☐) José got last year?

Ⓐ $4 + 6 + 7 = \square$
$\square = 17$
adds all the numbers in the problem together

Ⓑ $4 \times 6 + 7 = \square$
$\square = 31$
*

Ⓒ $4 \times 7 + 6 = \square$
$\square = 34$
multiplies 4 by 7 instead of 6

Ⓓ $4 + 7 \times 6 = \square$
$\square = 46$
multiplies the wrong two numbers together

B-O.3.1.7

25. A number sentence is shown below.

$$2 \times 4 \square 9 = 72$$

Which symbol goes into the ☐ to make the number sentence true?

Ⓐ +
thinks you add 9

Ⓑ ×
*

Ⓒ ÷
thinks since one symbol is ×, the other should be ÷

Ⓓ <
only compares 4 and 9 (or 2 × 4 and 9)

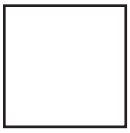
C-G.1.1

26. Marquis and Shawn built a tree house.

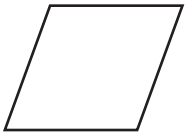
The shape of the floor of the tree house is a quadrilateral.

The shape of the floor is **not** a rectangle or a rhombus.

Which quadrilateral could be the shape of the floor of the tree house?

Ⓐ 

square (rectangle and rhombus)

Ⓑ 

rhombus

Ⓒ 

rectangle

Ⓓ 

*

C-G.1.1

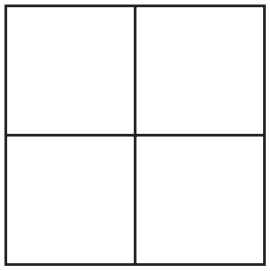
27. A map is drawn in the shape of a square.

The map is then divided into parts.

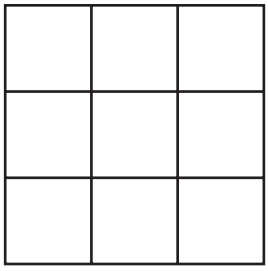
Each part has an area equal to $\frac{1}{4}$ the area of the entire map.

Each part is a rectangle but is **not** a square.

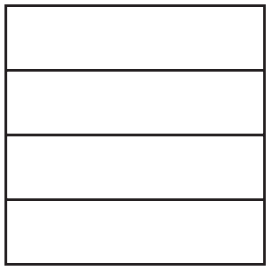
Which figure could show how the map is divided?

Ⓐ 

selects a figure with 1/4 the area but divided into squares

Ⓑ 

selects a figure with areas equal to 1/9, not 1/4, of the total area

Ⓒ 

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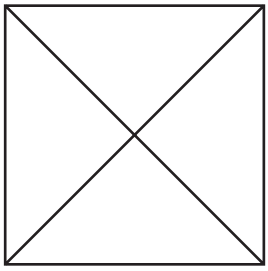
Ⓓ 

selects a figure in which the areas are neither rectangles nor squares

C-G.1.1

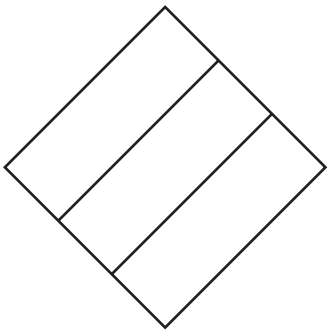
28. Carol draws a rhombus.

It is **not** a square.

She divides it into three equal-size parts.

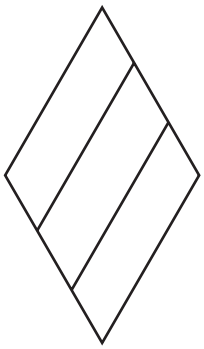
Which figure could be Carol's rhombus?

Ⓐ



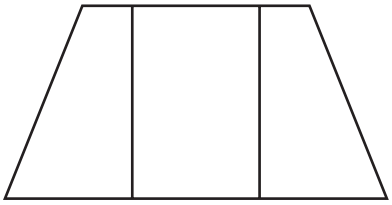
square

Ⓑ



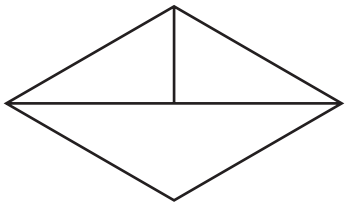
*

Ⓒ



not a rhombus

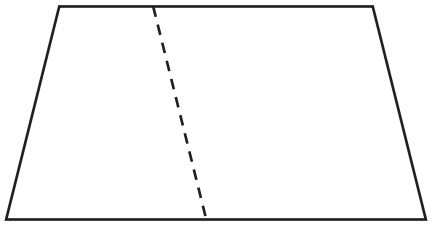
Ⓓ



3 non-equal areas

C-G.1.1.2

29. Paul divides a shape into two parts by drawing one line as shown below.



Which term describes the two parts and the original shape?

Ⓐ octagon — *counts 2 shapes with 4 sides each = 8 sides*

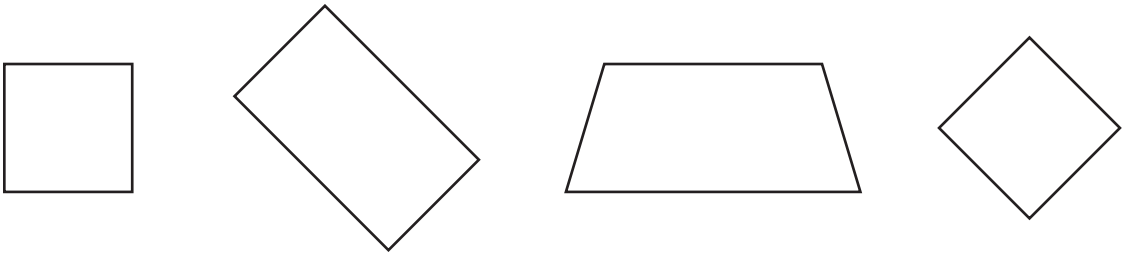
Ⓑ quadrilateral — *

Ⓒ rhombus — *shape on right is a rhombus*

Ⓓ square — *considers only the right shape and does not consider the angle measure*

C-G.1.1.2

30. Four shapes are shown below.



Which statement is true?

Ⓐ The four shapes are all trapezoids. — *thinks trapezoids have at least 1 pair of parallel sides, not exactly 1 pair of parallel sides*

Ⓑ The four shapes are all rectangles. — *confuses third shape for a rectangle*

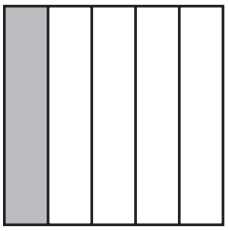
Ⓒ The four shapes are all quadrilaterals. — *

Ⓓ The four shapes are all parallelograms. — *thinks parallelograms have at least 1 pair of parallel sides, not 2 pairs of parallel sides*

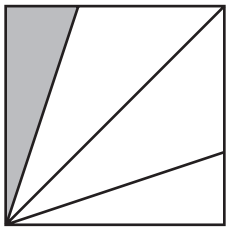
C-G.1.1.3

31. Lee has quilt patches.

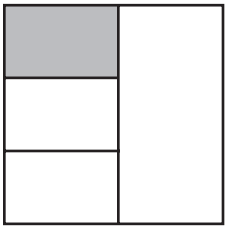
Which quilt patch has $\frac{1}{4}$ of its area shaded?

Ⓐ 

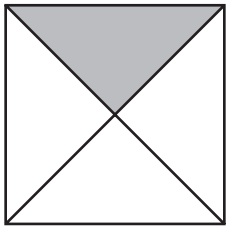
1/5, ratio of 1 section shaded to 4 sections unshaded

Ⓑ 

1 of 4 areas, but area is only 1/6 of the patch

Ⓒ 

1 of 4 areas, but area is only 1/6 of the patch

Ⓓ 

*

D-M.1

32. Dana has three coins in her pocket.

No two coins have the same value.

What is the **least** amount of money Dana could have in her pocket?

Ⓐ 3¢ *thinks all three are pennies*

Ⓑ 11¢ *counts two nickels and a penny*

Ⓒ 16¢ *

Ⓓ 40¢ *uses a quarter, dime, and nickel (no coins the same, but not least possible amount)*

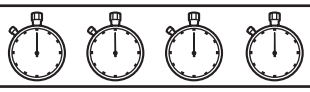
D-M.1.1
D-M.2.1.2

33. Three friends ran in a race.

The race started at 12:55.

The pictograph below shows the time it took each friend to finish the race.

Time Taken to Finish the Race

Friend	Time
Steven	
Val	
Zack	

Key:  = 2 minutes

At what time did Zack finish the race?

Ⓐ 1:00 *uses Val's row and forgets to multiply by 2*

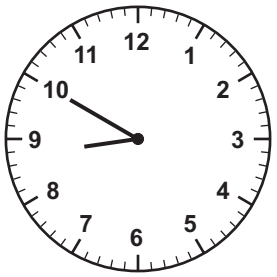
Ⓑ 1:01 *adds 6 minutes to 12:55*

Ⓒ 1:05 *uses Val's row*

Ⓓ 1:07 *

D-M.1.1.1
D-M.1.1.2

34. Kelly went to bed 30 minutes after the time shown on the clock.



At what time did Kelly go to bed?

Ⓐ 8:40 *reads time as 8:10*

Ⓑ 9:20 *

Ⓒ 9:40 *reads time as 9:10*

Ⓓ 10:20 *reads time as 9:50*

D-M.1.1.2
B-O.3.1.3

35. Marco arrived at the beach between 10:30 A.M. and 10:35 A.M.

He left the beach between 11:10 A.M. and 11:15 A.M.

Which is a possible amount of time Marco was at the beach?

Ⓐ 25 minutes — *subtracts 35 – 10*

Ⓑ 40 minutes *

Ⓒ 60 minutes — *only looks at the hours (11 – 10 = 1 hour = 60 minutes)*

Ⓓ 75 minutes — *subtracts 1110 – 1035*

D-M.1.2.2
A-T.1.1.3

36. Ethan is knitting a blanket.

He will use 20 balls of yarn.

There are 8 ounces of yarn in each ball.

How many ounces of yarn will Ethan use to knit the blanket?

Ⓐ 28 — *adds*

Ⓑ 100 — *uses addition instead of multiplication and incorrectly adds the 8 to the 2 in the tens place*

Ⓒ 160 *

Ⓓ 208 — *confuses multiplication rules and incorrectly appends the 8 to the end of the 20*

D-M.1.3.2

37. Dante bought a package of carrots that cost $3.76.

He used $4.00 to pay for the carrots.

Which group of coins shows the correct amount of change Dante should receive after paying for the carrots?

Ⓐ 

displays change paid, not change received

Ⓑ 

wrong coin amounts, uses nickels instead of dimes

Ⓒ 

subtraction error, subtracts .25 and then adds .01 instead of subtracting .01

Ⓓ 

*

D-M.1.3.3

38. Megan buys a book.

Rounded to the nearest dollar, her book costs $8.

Which amount could be the exact cost of the book?

Ⓐ $7.48 — *rounds the 4 to 5 and then the 7 to 8 (double rounding)*

Ⓑ $7.61 *

Ⓒ $8.83 — *rounds down*

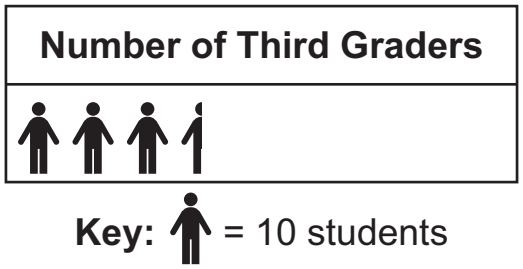
Ⓓ $9.08 — *rounds down by subtracting 1 from the ones place*

D-M.2.1.1
A-T.1.1.1

39. There are 77 third graders at Tyler's school.

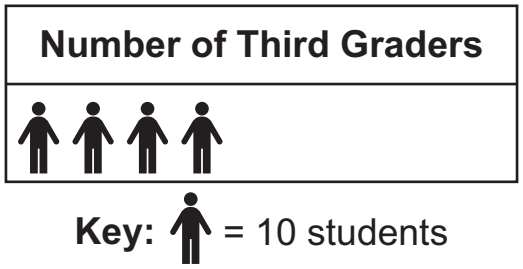
Which pictograph shows this number of third graders rounded to the nearest 10?

Ⓐ



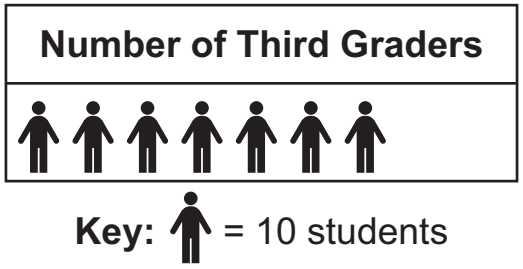
rounds down to 70 and uses a scale of 20

Ⓑ



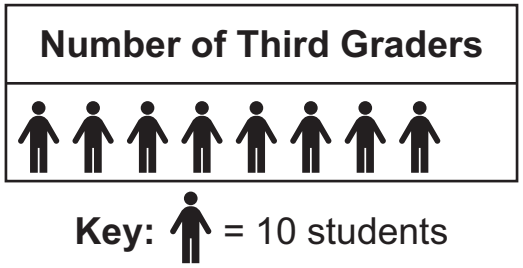
uses a scale of 20

Ⓒ



rounds down to 70

Ⓓ

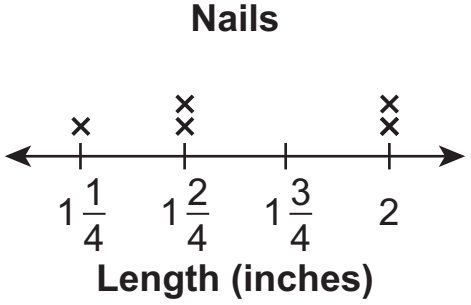


*

D-M.2.1.3

40. Kim measured the lengths of nails she found.

She made the line plot shown below.

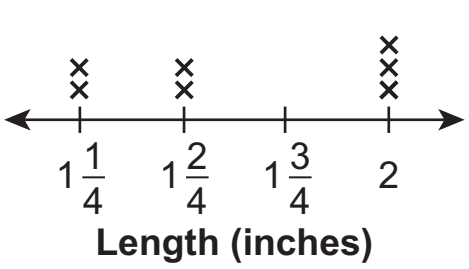


After making the line plot, she found two additional nails.

Use your ruler to measure the lengths of the two nails.

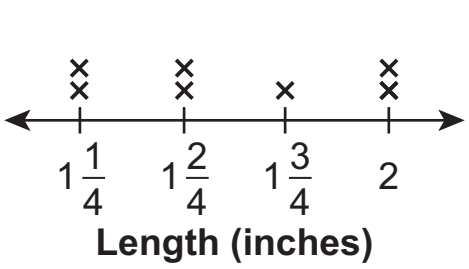
Which line plot now shows the lengths of all the nails Kim found?

Ⓐ



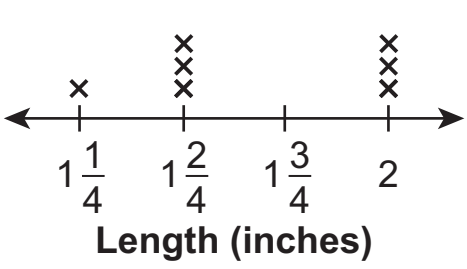
measures the second nail as 2 inches, accidentally starting at 1/4

Ⓑ



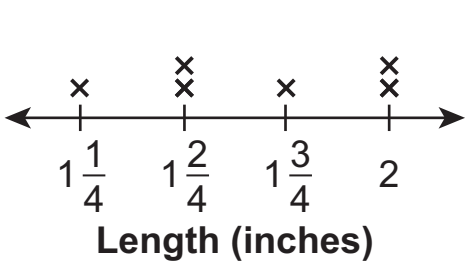
*

Ⓒ



measures the nails as 1 2/4 inches and 2 inches, off by 1/4 inch in both cases

Ⓓ



includes only the second nail in the line plot

D-M.2.1.4

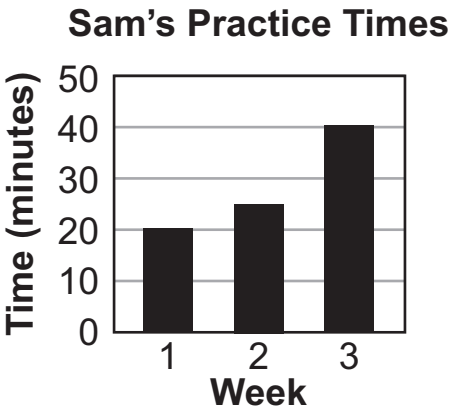
41. The table below shows how much time Sam practiced each week.

Sam's Practice Times

Week	Time (minutes)
1	25
2	20
3	40

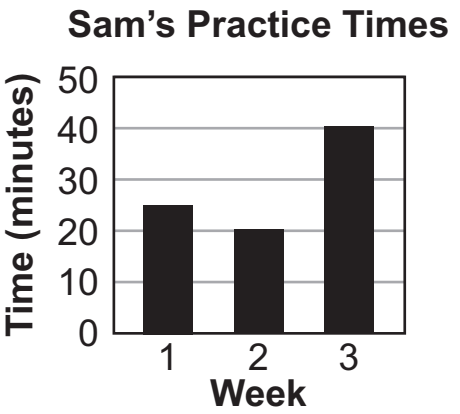
Which bar graph shows how much time Sam practiced each week?

Ⓐ



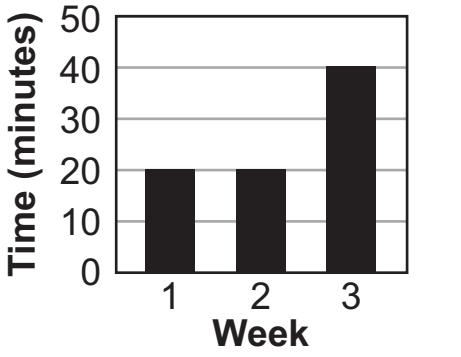
bars in ascending order by height

Ⓑ



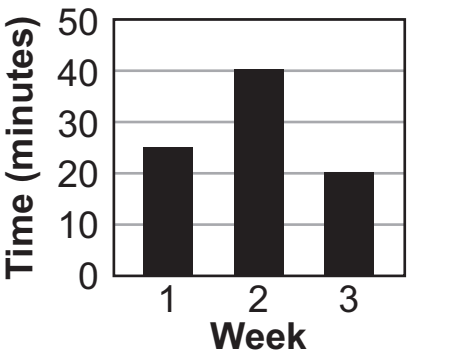
*

Ⓒ



rounds week 1 down to gridline

Ⓓ

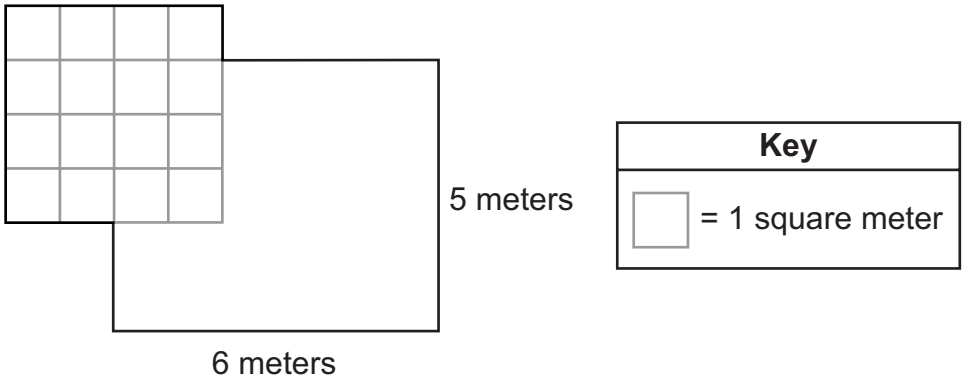


switches weeks 2 and 3

D-M.3.1

42. The drawing below shows Simone's bedroom floor.

Simone's Bedroom Floor



What is the area, in square meters, of Simone's bedroom floor?

Ⓐ 17 *counts the squares and adds 1 for the rectangle*

Ⓑ 27 *counts the squares and adds the dimensions of the rectangle*

Ⓒ 40 *

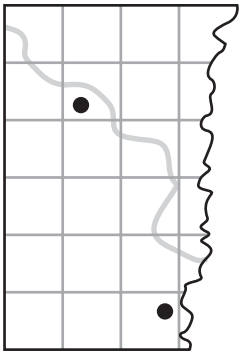
Ⓓ 46 *adds area of rectangle and counts the squares*

D-M.3.1.1
C-G.1.1

43. Sara had a map in the shape of a square.

Part of the map was torn off.

The part of the map that Sara still has is shown.



Each small square on the map represents 1 square unit.

How many square units did Sara's map have before it was torn?

Ⓐ 6 *just determines the height of the map*

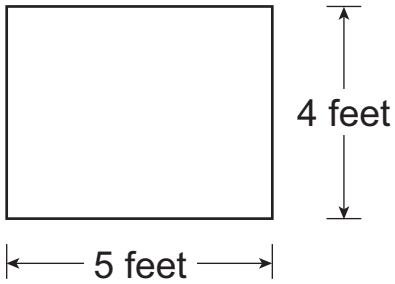
Ⓑ 18 *counts the full squares on the torn map*

Ⓒ 24 *counts the full squares and every partial square on the torn map*

Ⓓ 36 *

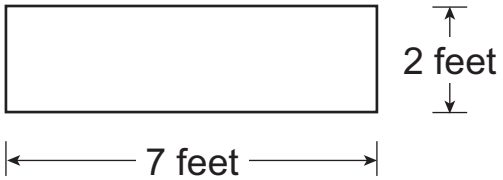
D-M.3.1.2

44. Natalie made a rug in the shape of the rectangle shown below.



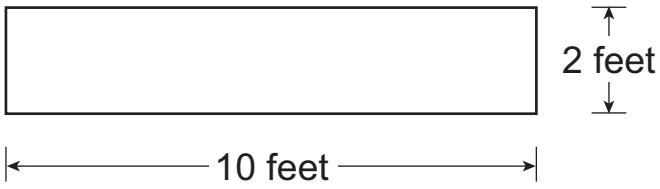
Which rug has the same area as the one Natalie made?

Ⓐ



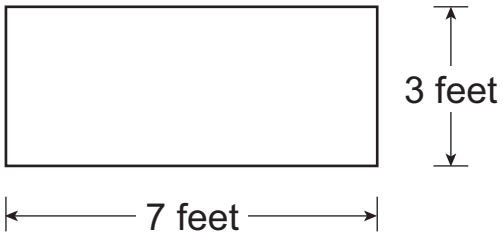
same perimeter, different area

Ⓑ



*

Ⓒ



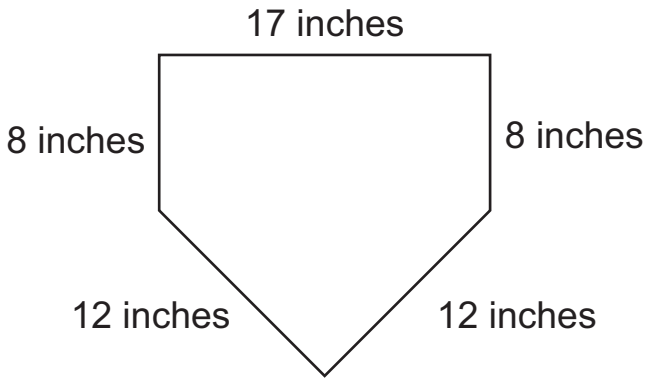
value of perimeter (20) same as value of given area

Ⓓ

multiplication error

D-M.4.1.1

45. The size and shape of home plate on a baseball field are shown below.



What is the perimeter, in inches, of home plate?

Ⓐ 37 *adds 17 + 8 + 12, ignoring duplicated numbers*

Ⓑ 40 *forgets to include the 17 inches at the top*

Ⓒ 57 *

Ⓓ 136 *multiplies 8 × 17 as if finding the area of the rectangular portion*

FIRST OPEN-ENDED QUESTION

A-F.1.1

Question 46
Page 1 of 4

Line Guide

A group of 8 customers ordered sundaes at an ice-cream shop.

The table below shows the toppings ordered on each sundae.

Sundae Topping Orders

Topping	Number of Customers
caramel	2
hot fudge	1
raspberry	4
strawberry	1

A. What fraction of the group of customers ordered strawberry topping?

PUT your answer in the **BLANK BELOW**.

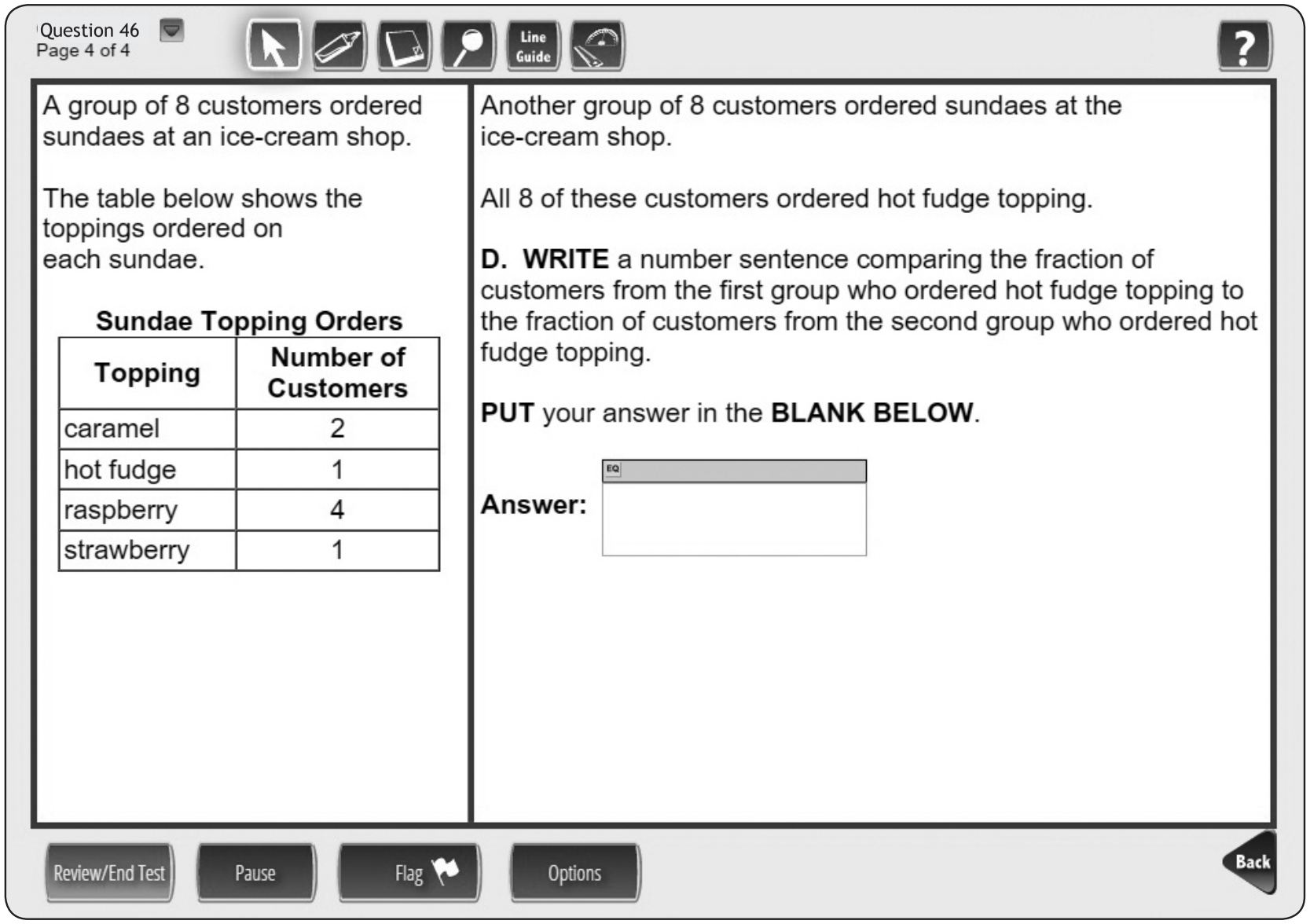
EQ

Answer:

Review/End Test | Pause | Flag | Options | Next

Question 46
Page 2 of 4
Line Guide
A group of 8 customers ordered sundaes at an ice-cream shop.
The table below shows the toppings ordered on each sundae.
Sundae Topping Orders
Topping
Number of Customers
caramel
2
hot fudge
1
raspberry
4
strawberry
1
Selma says the fraction of the group of customers who ordered raspberry topping is 1/2.
B. EXPLAIN why Selma's statement is correct.
EQ
0 / 1000
Review/End Test
Pause
Flag
Options
Back
Next

Question 46
Page 3 of 4
Line Guide
A group of 8 customers ordered sundaes at an ice-cream shop.
The table below shows the toppings ordered on each sundae.
Sundae Topping Orders
Topping
Number of Customers
caramel
2
hot fudge
1
raspberry
4
strawberry
1
Clarence says the fraction of the group of customers who ordered caramel topping is 1/4 since caramel is 1 of the 4 toppings.
C. EXPLAIN why Clarence's fraction is correct but his reasoning is not correct.
0 / 1000
Review/End Test
Pause
Flag
Options
Back
Next


Question 46
Page 4 of 4
Line Guide
?
A group of 8 customers ordered sundaes at an ice-cream shop.
The table below shows the toppings ordered on each sundae.
Sundae Topping Orders
Topping | Number of Customers
caramel | 2
hot fudge | 1
raspberry | 4
strawberry | 1
Another group of 8 customers ordered sundaes at the ice-cream shop.
All 8 of these customers ordered hot fudge topping.
D. WRITE a number sentence comparing the fraction of customers from the first group who ordered hot fudge topping to the fraction of customers from the second group who ordered hot fudge topping.
PUT your answer in the BLANK BELOW.
Answer:
EQ
Review/End Test
Pause
Flag
Options
Back

ITEM-SPECIFIC SCORING GUIDELINE

Question #46

Grade 3

Assessment Anchor this item will be reported under:

M03.A-F.1—Develop an understanding of fractions as numbers.

Specific Anchor Descriptor addressed by this item:

M03.A-F.1.1—Develop and apply number theory concepts to compare quantities and magnitudes of fractions and whole numbers.

Scoring Guide:

Score	In this item, the student –
4	Demonstrates a thorough understanding of developing an understanding of fractions as numbers and correctly solving problems and clearly explaining procedures.
3	Demonstrates a general understanding of developing an understanding of fractions as numbers by correctly solving problems and clearly explaining procedures with only minor errors or omissions.
2	Demonstrates a partial understanding of developing an understanding of fractions as numbers by correctly performing a significant portion of the required task.
1	Demonstrates minimal understanding of developing an understanding of fractions as numbers.
0	The response has no correct answer and insufficient evidence to demonstrate any understanding of the mathematical concepts and procedures as required by the task. Response may show only information copied from the question.
Non-Scorables	B – Blank R – Refusal K – Off task/topic F – Foreign language U – Illegible

Top Scoring Student Response And Training Notes:

Score	Description
4	Student earns 4 points.
3	Student earns 3.0 – 3.5 points.
2	Student earns 2.0 – 2.5 points.
1	Student earns 0.5 – 1.5 points. OR Student demonstrates minimal understanding of developing an understanding of fractions as numbers.
0	Response is incorrect or contains some correct work that is irrelevant to the skill or concept being measured.

Question #46

Top Scoring Response:

Part A Answer	
What?	**Why?**
$\frac{1}{8}$	

(1 score point)

1 point for correct answer

Part B Answer	
What?	**Why?**
	Sample Explanation: Since 4 out of 8 customers ordered raspberry topping, $\frac{4}{8}$ of the customer ordered raspberry topping. Since $\frac{4}{8} = \frac{1}{2}$, Selma is correct. **OR equivalent**

(1 score point)

1 point for correct and complete explanation
OR ½ point for correct but incomplete explanation

Part C Answer	
What?	**Why?**
	Sample Explanation: Clarence's fraction is correct because caramel is 1 topping out of 4 toppings. His reasoning is not correct because the fraction should be based on the number of customers (2 out of 8) and not the number of toppings (1 out of 4). **OR equivalent**

(1 score point)

1 point for correct and complete explanation
OR ½ point for correct but incomplete explanation

Part D Answer	
What?	**Why?**
$\frac{1}{8} < \frac{8}{8}$ **OR** $\frac{8}{8} > \frac{1}{8}$	

(1 score point)

1 point for correct answer

FIRST OPEN-ENDED QUESTION RESPONSES

A-F.1.1 Response Score: 4

Question 46
Page 1 of 4

Line Guide

A group of 8 customers ordered sundaes at an ice-cream shop.

The table below shows the toppings ordered on each sundae.

Sundae Topping Orders

Topping	Number of Customers
caramel	2
hot fudge	1
raspberry	4
strawberry	1

A. What fraction of the group of customers ordered strawberry topping?

PUT your answer in the **BLANK BELOW**.

Answer: $\frac{1}{8}$

The student has given a correct answer.

Review/End Test | Pause | Flag | Options | Next

Question 46
Page 2 of 4

Line Guide

A group of 8 customers ordered sundaes at an ice-cream shop.

The table below shows the toppings ordered on each sundae.

Sundae Topping Orders

Topping	Number of Customers
caramel	2
hot fudge	1
raspberry	4
strawberry	1

Selma says the fraction of the group of customers who ordered raspberry topping is $\frac{1}{2}$.

B. EXPLAIN why Selma's statement is correct.

EQ

Because 4 customers ordered raspberry and there are 8 customers in all so that is $\frac{4}{8}$ which is the same as $\frac{1}{2}$.

The student has given a complete explanation.

108 / 1000

Review/End Test | Pause | Flag | Options | Back | Next

Question 46
Page 3 of 4

Line Guide

A group of 8 customers ordered sundaes at an ice-cream shop.

The table below shows the toppings ordered on each sundae.

Sundae Topping Orders

Topping	Number of Customers
caramel	2
hot fudge	1
raspberry	4
strawberry	1

Clarence says the fraction of the group of customers who ordered caramel topping is $\frac{1}{4}$ since caramel is 1 of the 4 toppings.

C. EXPLAIN why Clarence's fraction is correct but his reasoning is **not** correct.

EQ

Carmel is 1 topping out of 4 kinds of toppings so that makes $\frac{1}{4}$ correct. But if you mean customers then it is 2 out of 8 got carmel and that is the same as $\frac{1}{4}$, but not because there are 4 toppings and one is carmel.

The student has given a complete explanation.

213 / 1000

Review/End Test | Pause | Flag | Options | Back | Next

Question 46
Page 4 of 4

A group of 8 customers ordered sundaes at an ice-cream shop.

The table below shows the toppings ordered on each sundae.

Sundae Topping Orders

Topping	Number of Customers
caramel	2
hot fudge	1
raspberry	4
strawberry	1

Another group of 8 customers ordered sundaes at the ice-cream shop.

All 8 of these customers ordered hot fudge topping.

D. WRITE a number sentence comparing the fraction of customers from the first group who ordered hot fudge topping to the fraction of customers from the second group who ordered hot fudge topping.

PUT your answer in the **BLANK BELOW**.

Answer: $\frac{1}{8} < \frac{8}{8}$

The student has given a correct answer.

Review/End Test | Pause | Flag | Options | Back

A-F.1.1 Response Score: 3

Question 46
Page 1 of 4

A group of 8 customers ordered sundaes at an ice-cream shop.

The table below shows the toppings ordered on each sundae.

Sundae Topping Orders

Topping	Number of Customers
caramel	2
hot fudge	1
raspberry	4
strawberry	1

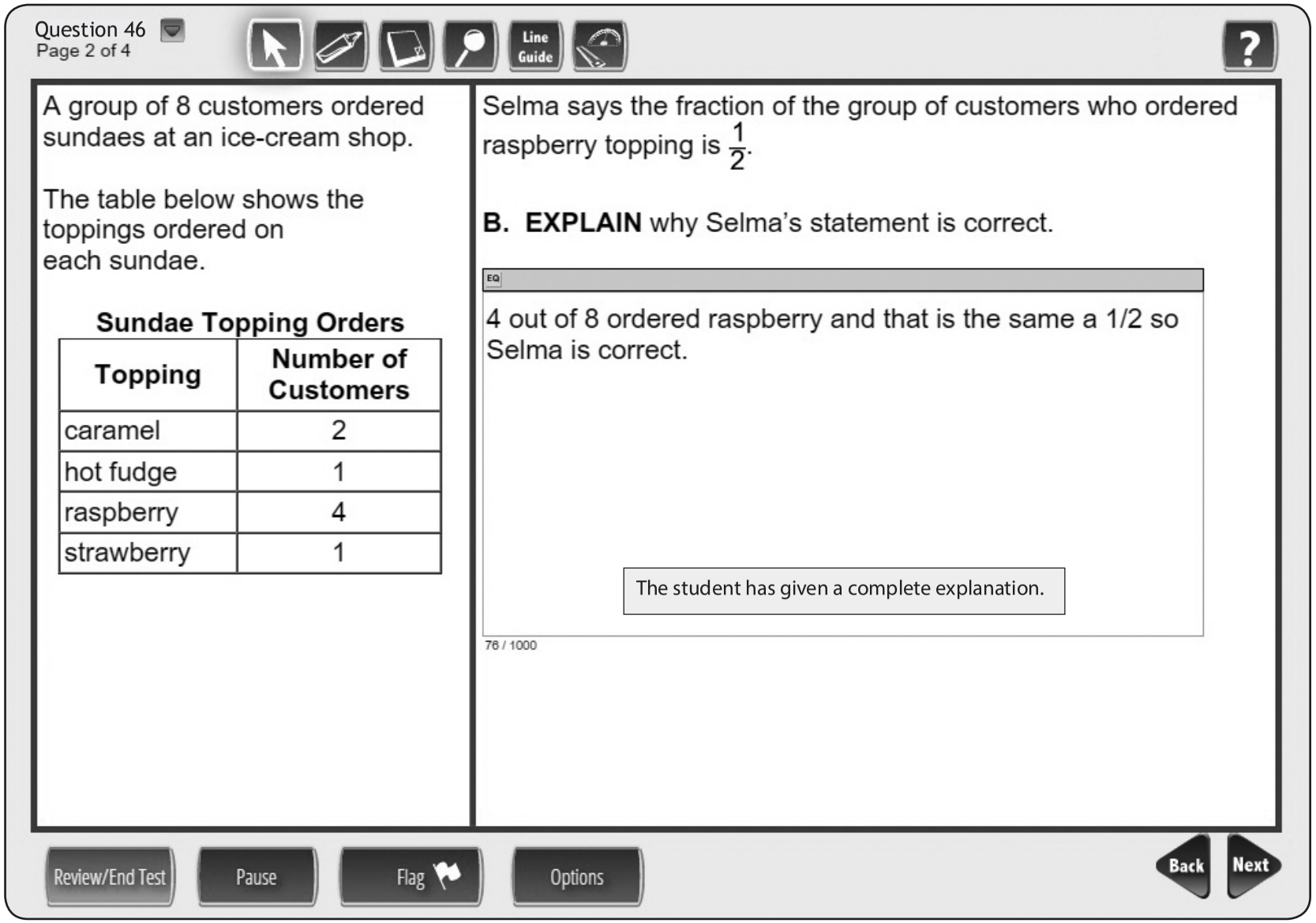
A. What fraction of the group of customers ordered strawberry topping?

PUT your answer in the **BLANK BELOW**.

Answer: 1/8

The student has given a correct answer.

Review/End Test | Pause | Flag | Options | Next


Question 46
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Line Guide
?
A group of 8 customers ordered sundaes at an ice-cream shop.
The table below shows the toppings ordered on each sundae.
Sundae Topping Orders
Topping
Number of Customers
caramel
2
hot fudge
1
raspberry
4
strawberry
1
Selma says the fraction of the group of customers who ordered raspberry topping is 1/2.
B. EXPLAIN why Selma's statement is correct.
EQ
4 out of 8 ordered raspberry and that is the same a 1/2 so Selma is correct.
The student has given a complete explanation.
76 / 1000
Review/End Test
Pause
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Question 46
Page 3 of 4

Line Guide

A group of 8 customers ordered sundaes at an ice-cream shop.

The table below shows the toppings ordered on each sundae.

Sundae Topping Orders

Topping	Number of Customers
caramel	2
hot fudge	1
raspberry	4
strawberry	1

Clarence says the fraction of the group of customers who ordered caramel topping is $\frac{1}{4}$ since caramel is 1 of the 4 toppings.

C. EXPLAIN why Clarence's fraction is correct but his reasoning is **not** correct.

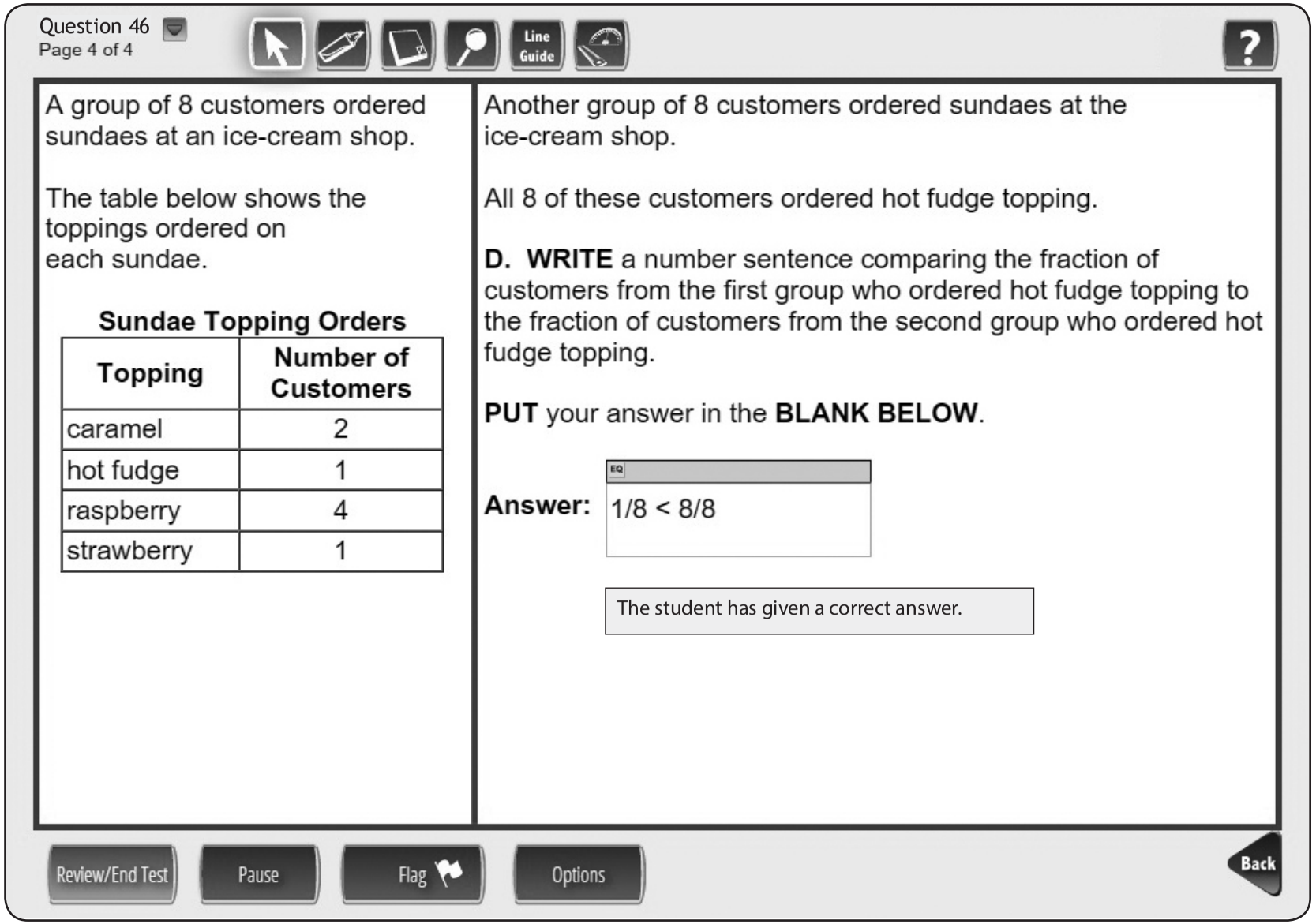
EQ

2 people ordered carmel and that is 2/8 so 1/4.

The student has given a correct but incomplete explanation.

49 / 1000

Review/End Test | Pause | Flag | Options | Back | Next


Question 46
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Line Guide
?
A group of 8 customers ordered sundaes at an ice-cream shop.
The table below shows the toppings ordered on each sundae.
Sundae Topping Orders
Topping | Number of Customers
caramel | 2
hot fudge | 1
raspberry | 4
strawberry | 1
Another group of 8 customers ordered sundaes at the ice-cream shop.
All 8 of these customers ordered hot fudge topping.
D. WRITE a number sentence comparing the fraction of customers from the first group who ordered hot fudge topping to the fraction of customers from the second group who ordered hot fudge topping.
PUT your answer in the BLANK BELOW.
Answer:
EQ
1/8 < 8/8
The student has given a correct answer.
Review/End Test
Pause
Flag
Options
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A-F.1.1 Response Score: 2

Question 46
Page 1 of 4

A group of 8 customers ordered sundaes at an ice-cream shop.

The table below shows the toppings ordered on each sundae.

Sundae Topping Orders

Topping	Number of Customers
caramel	2
hot fudge	1
raspberry	4
strawberry	1

A. What fraction of the group of customers ordered strawberry topping?

PUT your answer in the **BLANK BELOW**.

Answer: $\frac{1}{8}$

The student has given a correct answer.

Review/End Test | Pause | Flag | Options | Next

Question 46
Page 2 of 4

Line Guide

A group of 8 customers ordered sundaes at an ice-cream shop.

The table below shows the toppings ordered on each sundae.

Sundae Topping Orders

Topping	Number of Customers
caramel	2
hot fudge	1
raspberry	4
strawberry	1

Selma says the fraction of the group of customers who ordered raspberry topping is $\frac{1}{2}$.

B. EXPLAIN why Selma's statement is correct.

EQ

Four customers ordered rasperry and there are 8 in all and that is 4/8.

The student has given a correct but incomplete explanation.

71 / 1000

Review/End Test | Pause | Flag | Options | Back | Next

Question 46
Page 3 of 4

A group of 8 customers ordered sundaes at an ice-cream shop.

The table below shows the toppings ordered on each sundae.

Sundae Topping Orders

Topping	Number of Customers
caramel	2
hot fudge	1
raspberry	4
strawberry	1

Clarence says the fraction of the group of customers who ordered caramel topping is $\frac{1}{4}$ since caramel is 1 of the 4 toppings.

C. EXPLAIN why Clarence's fraction is correct but his reasoning is **not** correct.

EQ

Because more than 1 person ordered caramel

The student has given an incorrect explanation.

42 / 1000

Review/End Test | Pause | Flag | Options | Back | Next

Question 46
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Line Guide

A group of 8 customers ordered sundaes at an ice-cream shop.

The table below shows the toppings ordered on each sundae.

Sundae Topping Orders

Topping	Number of Customers
caramel	2
hot fudge	1
raspberry	4
strawberry	1

Another group of 8 customers ordered sundaes at the ice-cream shop.

All 8 of these customers ordered hot fudge topping.

D. WRITE a number sentence comparing the fraction of customers from the first group who ordered hot fudge topping to the fraction of customers from the second group who ordered hot fudge topping.

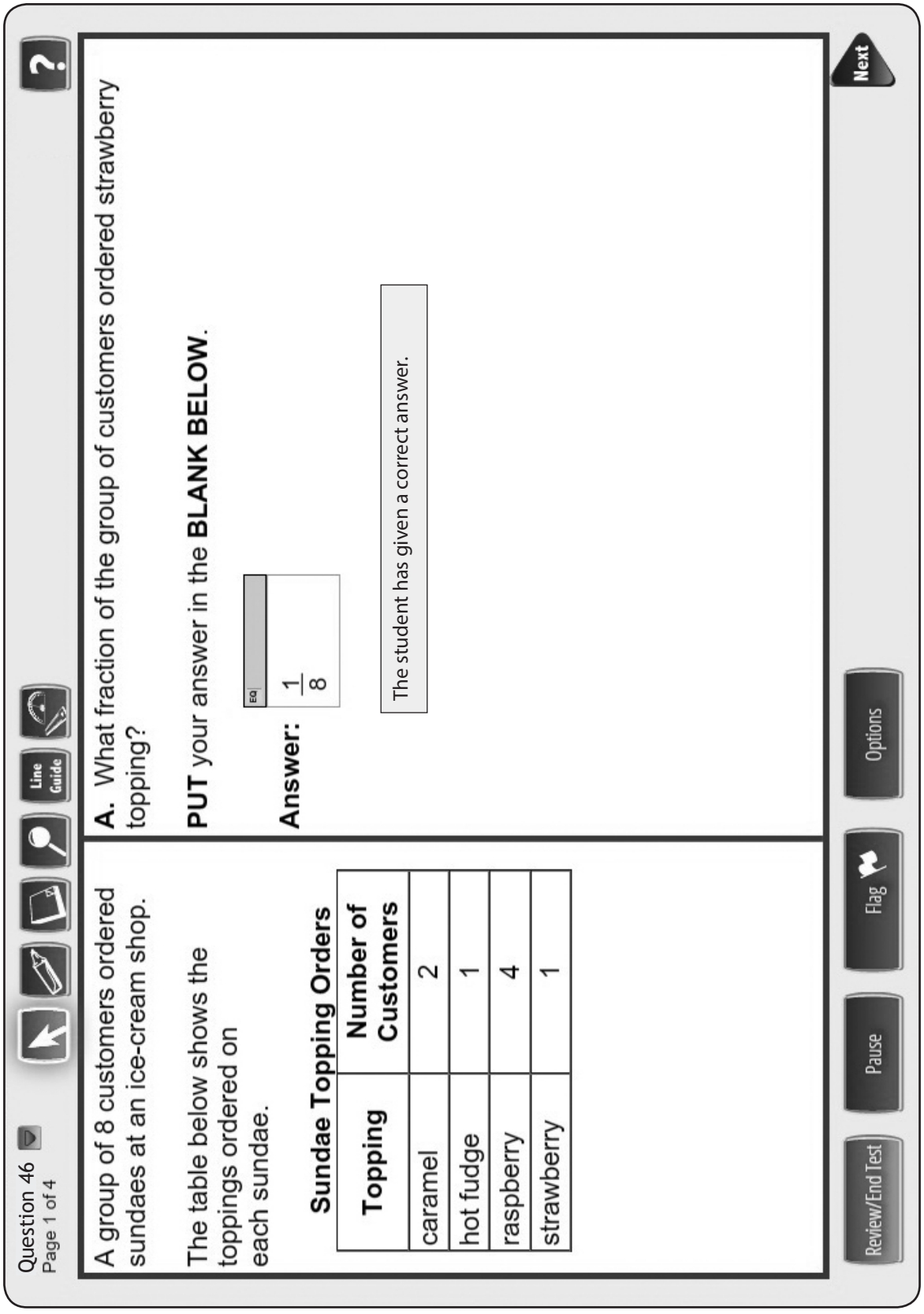
PUT your answer in the **BLANK BELOW**.

Answer: EQ $\frac{8}{8} > \frac{1}{8}$

The student has given a correct answer.

Review/End Test | Pause | Flag | Options | Back

A-F.1.1 Response Score: 1



Question 46
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Line Guide
?
A group of 8 customers ordered sundaes at an ice-cream shop.
The table below shows the toppings ordered on each sundae.
Sundae Topping Orders
Topping
Number of Customers
caramel
2
hot fudge
1
raspberry
4
strawberry
1
Selma says the fraction of the group of customers who ordered raspberry topping is 1/2.
B. EXPLAIN why Selma's statement is correct.
EQ
4 ordered raspberry not 1
The student has given an incorrect explanation.
25 / 1000
Review/End Test
Pause
Flag
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Question 46
Page 3 of 4

A group of 8 customers ordered sundaes at an ice-cream shop.

The table below shows the toppings ordered on each sundae.

Sundae Topping Orders

Topping	Number of Customers
caramel	2
hot fudge	1
raspberry	4
strawberry	1

Clarence says the fraction of the group of customers who ordered caramel topping is $\frac{1}{4}$ since caramel is 1 of the 4 toppings.

C. EXPLAIN why Clarence's fraction is correct but his reasoning is **not** correct.

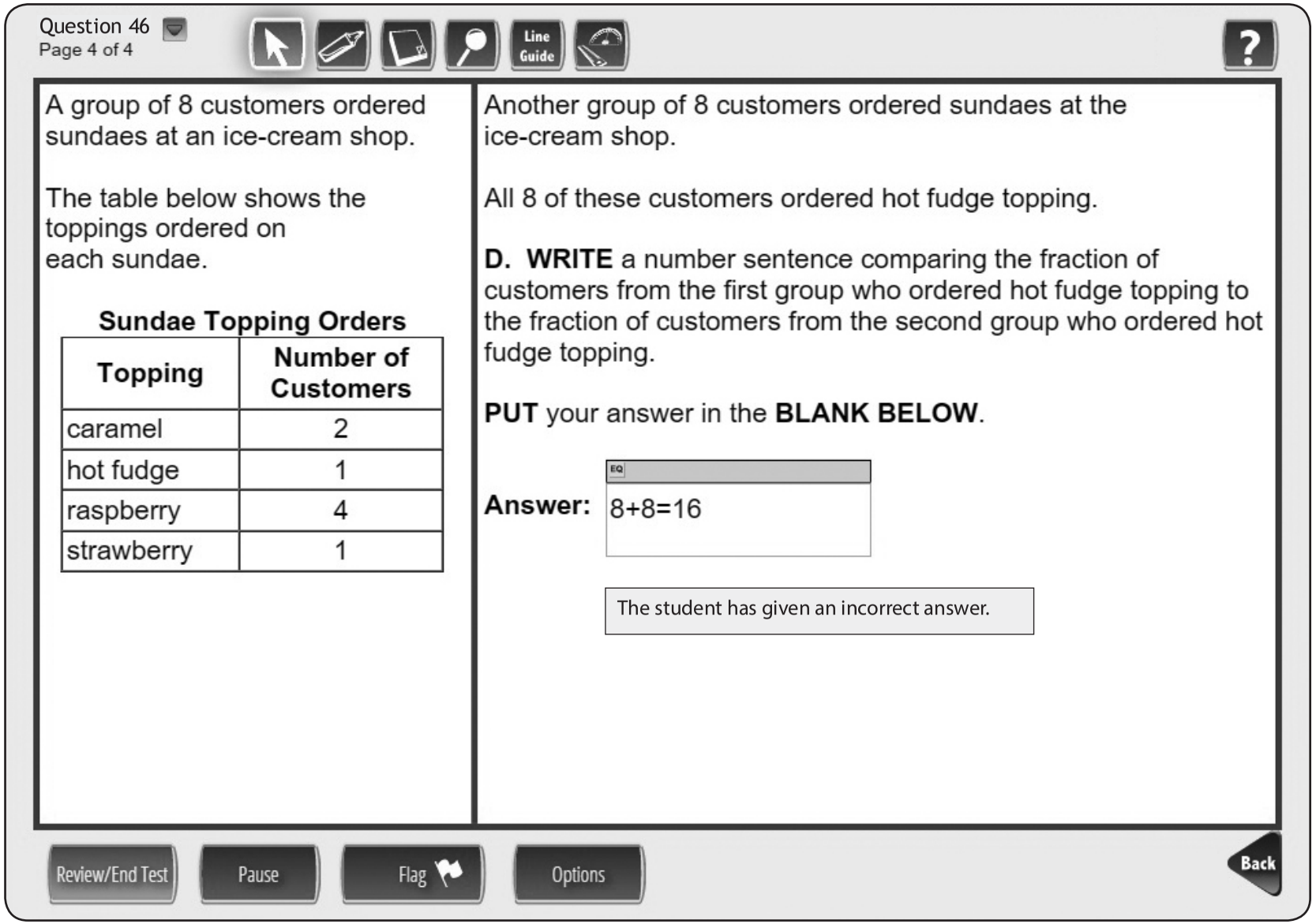
EQ

2 ordered caramel not 1

The student has given an incorrect explanation.

23 / 1000

Review/End Test | Pause | Flag | Options | Back | Next


Question 46
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Line Guide
?
A group of 8 customers ordered sundaes at an ice-cream shop.
The table below shows the toppings ordered on each sundae.
Sundae Topping Orders
Topping | Number of Customers
caramel | 2
hot fudge | 1
raspberry | 4
strawberry | 1
Another group of 8 customers ordered sundaes at the ice-cream shop.
All 8 of these customers ordered hot fudge topping.
D. WRITE a number sentence comparing the fraction of customers from the first group who ordered hot fudge topping to the fraction of customers from the second group who ordered hot fudge topping.
PUT your answer in the BLANK BELOW.
Answer:
EQ
8+8=16
The student has given an incorrect answer.
Review/End Test
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A-F.1.1 Response Score: 0

Question 46
Page 1 of 4

Line Guide

A group of 8 customers ordered sundaes at an ice-cream shop.

The table below shows the toppings ordered on each sundae.

Sundae Topping Orders

Topping	Number of Customers
caramel	2
hot fudge	1
raspberry	4
strawberry	1

A. What fraction of the group of customers ordered strawberry topping?

PUT your answer in the **BLANK BELOW**.

Answer: 1/4

The student has given an incorrect answer.

Review/End Test | Pause | Flag | Options | Next

Question 46
Page 2 of 4

Line Guide

A group of 8 customers ordered sundaes at an ice-cream shop.

The table below shows the toppings ordered on each sundae.

Sundae Topping Orders

Topping	Number of Customers
caramel	2
hot fudge	1
raspberry	4
strawberry	1

Selma says the fraction of the group of customers who ordered raspberry topping is $\frac{1}{2}$.

B. EXPLAIN why Selma's statement is correct.

EQ

Most people like raspberry than the others.

The student has given an incorrect explanation.

43 / 1000

Review/End Test | Pause | Flag | Options | Back | Next

Question 46
Page 3 of 4

A group of 8 customers ordered sundaes at an ice-cream shop.

The table below shows the toppings ordered on each sundae.

Sundae Topping Orders

Topping	Number of Customers
caramel	2
hot fudge	1
raspberry	4
strawberry	1

Clarence says the fraction of the group of customers who ordered caramel topping is $\frac{1}{4}$ since caramel is 1 of the 4 toppings.

C. EXPLAIN why Clarence's fraction is correct but his reasoning is **not** correct.

EQ

Caramel is 2/4 so he is wrong

The student has given an incorrect explanation.

29 / 1000

Review/End Test | Pause | Flag | Options | Back | Next

Question 46
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A group of 8 customers ordered sundaes at an ice-cream shop.

The table below shows the toppings ordered on each sundae.

Sundae Topping Orders

Topping	Number of Customers
caramel	2
hot fudge	1
raspberry	4
strawberry	1

Another group of 8 customers ordered sundaes at the ice-cream shop.

All 8 of these customers ordered hot fudge topping.

D. WRITE a number sentence comparing the fraction of customers from the first group who ordered hot fudge topping to the fraction of customers from the second group who ordered hot fudge topping.

PUT your answer in the **BLANK BELOW**.

Answer: 8/8

The student has given an incorrect answer.

Review/End Test | Pause | Flag | Options | Back

SECOND OPEN-ENDED QUESTION

B-O.1.2.1
D-M.1.1

47. Saul plays piano.

Each day in January, Saul played the piano for 30 minutes.

A. How many minutes, in total, did Saul play the piano during one week in January?

PUT your answer in the **BLANK BELOW.**

Answer: _____ minutes

It took Saul 30 minutes to play 6 songs.

He played each song for the same amount of time.

B. For how many minutes did Saul play each song?

PUT your answer in the **BLANK BELOW.**

SHOW or **EXPLAIN** all your work.

_____

_____

_____

_____

Answer: _____ minutes

GO ON

47. ***Continued.*** Please refer to the previous page for task explanation.

Each day in February, Saul played the piano for 12 minutes longer than he played the piano each day in January.

One day in February, he started playing the piano at 3:15 P.M.

He did not take a break.

C. WRITE the time Saul finished playing the piano that day in February.

Answer: _____ P.M.

ITEM-SPECIFIC SCORING GUIDELINE

Question #47

Grade 3

Assessment Anchor this item will be reported under:

M03.B-O.1—Represent and solve problems involving multiplication and division.

Specific Anchor Descriptor addressed by this item:

M03.B-O.1.2—Solve mathematical and real-world problems using multiplication and division, including determining the missing number in a multiplication and/or division equation.

M03.D-M.1.1—Determine or calculate time and elapsed time.

Scoring Guide:

Score	In this item, the student –
4	Demonstrates a thorough understanding of how to represent and solve problems involving multiplication and division by correctly solving problems and clearly explaining procedures.
3	Demonstrates a general understanding of how to represent and solve problems involving multiplication and division by correctly solving problems and clearly explaining procedures with only minor errors or omissions.
2	Demonstrates a partial understanding of how to represent and solve problems involving multiplication and division by correctly performing a significant portion of the required task.
1	Demonstrates minimal understanding of how to represent and solve problems involving multiplication and division.
0	The response has no correct answer and insufficient evidence to demonstrate any understanding of the mathematical concepts and procedures as required by the task. Response may show only information copied from the question.
Non-Scorables	B – Blank R – Refusal K – Off task/topic F – Foreign language U – Illegible

Top Scoring Student Response And Training Notes:

Score	Description
4	Student earns 4 points.
3	Student earns 3.0 – 3.5 points.
2	Student earns 2.0 – 2.5 points.
1	Student earns 0.5 – 1.5 points. OR Student demonstrates minimal understanding of how to represent and solve problems involving multiplication and division.
0	Response is incorrect or contains some correct work that is irrelevant to the skill or concept being measured.

Question #47

Top Scoring Response:

Part A Answer	
What?	**Why?**
210 (minutes)	

(1 score point)

1 point for correct answer

Part B Answer	
What?	**Why?**
5 (minutes)	**Sample Work:** $30 \div 6 = 5$ **OR** $6 \times 5 = 30$ **OR** **Sample Explanation:** I know that 6 goes evenly into 30, 5 times. **OR equivalent**

(2 score points)

1 point for correct answer
1 point for correct and complete support

Part C Answer	
What?	**Why?**
3:57 (P.M.)	

(1 score point)

1 point for correct answer

SECOND OPEN-ENDED QUESTION RESPONSES

B-O.1.2.1
D-M.1.1 Response Score: 4

47. Saul plays piano.

Each day in January, Saul played the piano for 30 minutes.

A. How many minutes, in total, did Saul play the piano during one week in January?

PUT your answer in the **BLANK BELOW.**

30 x 7=
210

The student has given a correct answer.

Answer: 210 minutes

It took Saul 30 minutes to play 6 songs.

He played each song for the same amount of time.

B. For how many minutes did Saul play each song?

PUT your answer in the **BLANK BELOW.**

SHOW or **EXPLAIN** all your work.

30 ÷ 6 = 5

Answer: 5 minutes

The student has given a correct answer.
The student has shown complete support.

GO ON

47. ***Continued.*** Please refer to the previous page for task explanation.

Each day in February, Saul played the piano for 12 minutes longer than he played the piano each day in January.

One day in February, he started playing the piano at 3:15 P.M.

He did not take a break.

C. WRITE the time Saul finished playing the piano that day in February.

30 + 12 = 42

3:15 + 42 =

3:57

Answer: 3:57 P.M.

The student has given a correct answer.

B-O.1.2.1
D-M.1.1 Response Score: 3

47. Saul plays piano.

Each day in January, Saul played the piano for 30 minutes.

A. How many minutes, in total, did Saul play the piano during one week in January?

PUT your answer in the **BLANK BELOW.**

The student has given a correct answer.

Answer: 210 minutes

It took Saul 30 minutes to play 6 songs.

He played each song for the same amount of time.

B. For how many minutes did Saul play each song?

PUT your answer in the **BLANK BELOW.**

SHOW or **EXPLAIN** all your work.

$6 \times 5 = 30$

$30 \div 5 = 6$

$30 \div 6 = 5$

Answer: 6 minutes

The student has given an incorrect answer.
The student has shown complete support.

GO ON

47. ***Continued.*** Please refer to the previous page for task explanation.

Each day in February, Saul played the piano for 12 minutes longer than he played the piano each day in January.

One day in February, he started playing the piano at 3:15 P.M.

He did not take a break.

C. WRITE the time Saul finished playing the piano that day in February.

Answer: 3:57 P.M.

The student has given a correct answer.

B-O.1.2.1
D-M.1.1 Response Score: 2

47. Saul plays piano.

Each day in January, Saul played the piano for 30 minutes.

A. How many minutes, in total, did Saul play the piano during one week in January?

PUT your answer in the **BLANK BELOW.**

The student has given a correct answer.

Answer: 210 minutes

It took Saul 30 minutes to play 6 songs.

He played each song for the same amount of time.

B. For how many minutes did Saul play each song?

PUT your answer in the **BLANK BELOW.**

SHOW or **EXPLAIN** all your work.

$30 \times 6 = 180$

Answer: 180 minutes

The student has given an incorrect answer.
The student has shown incorrect support.

GO ON

47. ***Continued.*** Please refer to the previous page for task explanation.

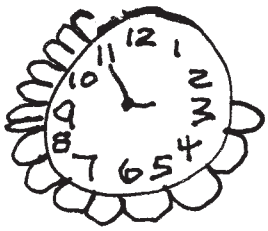
Each day in February, Saul played the piano for 12 minutes longer than he played the piano each day in January.

One day in February, he started playing the piano at 3:15 P.M.

He did not take a break.

C. WRITE the time Saul finished playing the piano that day in February.

3:15 + 30 + 12



Answer: 3:57 P.M.

The student has given a correct answer.

B-O.1.2.1
D-M.1.1 Response Score: 1

47. Saul plays piano.

Each day in January, Saul played the piano for 30 minutes.

A. How many minutes, in total, did Saul play the piano during one week in January?

PUT your answer in the **BLANK BELOW.**

The student has given an incorrect answer.

Answer: 7 minutes

It took Saul 30 minutes to play 6 songs.

He played each song for the same amount of time.

B. For how many minutes did Saul play each song?

PUT your answer in the **BLANK BELOW.**

SHOW or **EXPLAIN** all your work.

30 ÷ 6 = 24

Answer: 24 minutes

The student has given an incorrect answer.
The student has shown complete support.

GO ON

47. ***Continued.*** Please refer to the previous page for task explanation.

Each day in February, Saul played the piano for 12 minutes longer than he played the piano each day in January.

One day in February, he started playing the piano at 3:15 P.M.

He did not take a break.

C. WRITE the time Saul finished playing the piano that day in February.

3:15
+ 12
3 27

Answer: 3:27 P.M.

The student has given an incorrect answer.

B-O.1.2.1
D-M.1.1 Response Score: 0

47. Saul plays piano.

Each day in January, Saul played the piano for 30 minutes.

A. How many minutes, in total, did Saul play the piano during one week in January?

PUT your answer in the **BLANK BELOW.**

The student has given an incorrect answer.

Answer: 30 minutes

It took Saul 30 minutes to play 6 songs.

He played each song for the same amount of time.

B. For how many minutes did Saul play each song?

PUT your answer in the **BLANK BELOW.**

SHOW or **EXPLAIN** all your work.

He played each song the same.

Answer: 30 minutes

The student has given an incorrect answer.
The student has shown incorrect support.

GO ON

47. ***Continued.*** Please refer to the previous page for task explanation.

Each day in February, Saul played the piano for 12 minutes longer than he played the piano each day in January.

One day in February, he started playing the piano at 3:15 P.M.

He did not take a break.

C. WRITE the time Saul finished playing the piano that day in February.

Answer: 3:15 P.M.

The student has given an incorrect answer.

THIRD OPEN-ENDED QUESTION

C-G.1

48. Marco bought a cake for his family.

The picture below shows the top of Marco's cake.

Marco's Cake

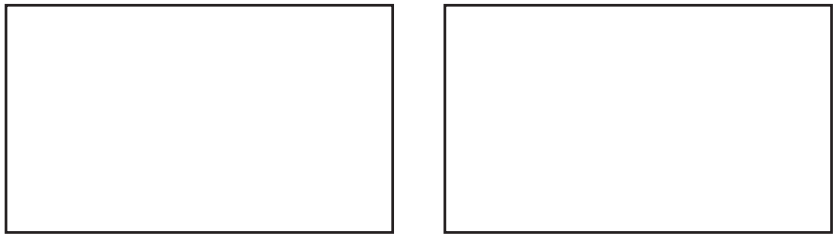
A. What word describes the shape of the top of Marco's cake?

PUT your answer in the **BLANK BELOW.**

Answer: _____

Marco cut the cake into 8 equal pieces.

B. SHOW two ways Marco could cut his cake into 8 equal pieces.



GO ON

48. ***Continued.*** Please refer to the previous page for task explanation.

The top of Nikki's cake is shown below.

Nikki's Cake

She cut her cake into 16 equal pieces.

Nikki says that her cake is bigger than Marco's cake because it has more pieces.

C. EXPLAIN why Nikki is **not** correct.

ITEM-SPECIFIC SCORING GUIDELINE

Question #48

Grade 3

Assessment Anchor this item will be reported under:

M03.C-G.1—Reason with shapes and their attributes.

Specific Anchor Descriptor addressed by this item:

M03.C-G.1.1—Analyze characteristics of polygons.

Scoring Guide:

Score	In this item, the student –
4	Demonstrates a thorough understanding of how to reason with shapes and their attributes by correctly solving problems and clearly explaining procedures.
3	Demonstrates a general understanding of how to reason with shapes and their attributes by correctly solving problems and clearly explaining procedures with only minor errors or omissions.
2	Demonstrates a partial understanding of how to reason with shapes and their attributes by correctly performing a significant portion of the required task.
1	Demonstrates minimal understanding of how to reason with shapes and their attributes.
0	The response has no correct answer and insufficient evidence to demonstrate any understanding of the mathematical concepts and procedures as required by the task. Response may show only information copied from the question.
Non-Scorables	B – Blank R – Refusal K – Off task/topic F – Foreign language U – Illegible

Top Scoring Student Response And Training Notes:

Score	Description
4	Student earns 4 points.
3	Student earns 3.0 – 3.5 points.
2	Student earns 2.0 – 2.5 points.
1	Student earns 0.5 – 1.5 points. OR Student demonstrates minimal understanding of how to reason with shapes and their attributes.
0	Response is incorrect or contains some correct work that is irrelevant to the skill or concept being measured.

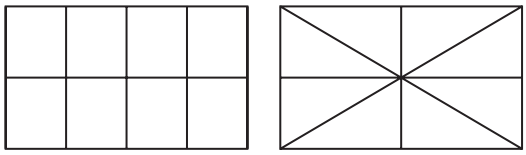
Question #48

Top Scoring Response:

Part A Answer	
What?	**Why?**
Answers may vary. Accept rectangle, parallelogram, quadrilateral, or polygon. **Sample Response:** rectangle	

(1 score point)

1 point for correct answer

Part B Answer	
What?	**Why?**
Answers may vary. Each rectangle should be divided into 8 equal-sized pieces, but cut in different ways. **Sample Response:** 	

(2 score points)

1 point for each correct answer

Part C Answer	
What?	**Why?**
	Sample Explanation: The cakes are the same size to start with. Nikki's cake has more pieces, but each of those pieces is smaller than each of the pieces of Marco's cake.

(1 score point)

1 point for complete explanation

THIRD OPEN-ENDED QUESTION RESPONSES

C-G.1 Response Score: 4

48. Marco bought a cake for his family.

The picture below shows the top of Marco's cake.

Marco's Cake

A. What word describes the shape of the top of Marco's cake?

PUT your answer in the **BLANK BELOW.**

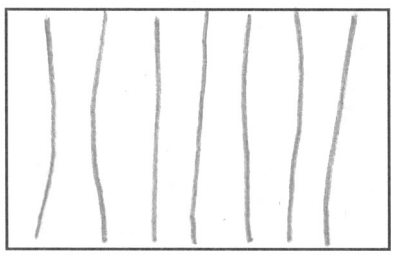
The student has given a correct answer.

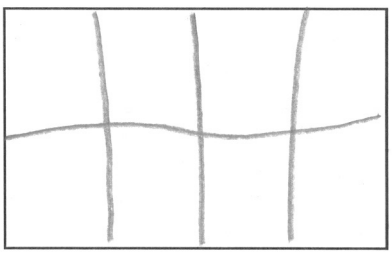
Answer: rectangle

Marco cut the cake into 8 equal pieces.

B. SHOW two ways Marco could cut his cake into 8 equal pieces.

The student has given two correct answers.





GO ON

48. ***Continued.*** Please refer to the previous page for task explanation.

The top of Nikki's cake is shown below.

Nikki's Cake

She cut her cake into 16 equal pieces.

Nikki says that her cake is bigger than Marco's cake because it has more pieces.

C. EXPLAIN why Nikki is **not** correct.

Nikki got more pieces because she cut them smaller. The cake is still the same size.

The student has given a complete explanation.

C-G.1 Response Score: 3

48. Marco bought a cake for his family.

The picture below shows the top of Marco's cake.

Marco's Cake

A. What word describes the shape of the top of Marco's cake?

PUT your answer in the **BLANK BELOW.**

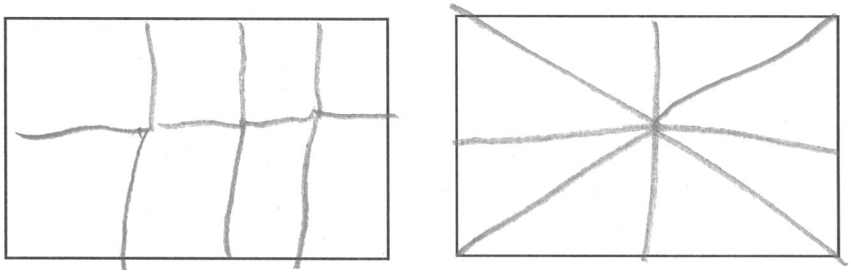
The student has given a correct answer.

Answer: Parallelogram

Marco cut the cake into 8 equal pieces.

B. SHOW two ways Marco could cut his cake into 8 equal pieces.

The student has given two correct answers.



GO ON

48. ***Continued.*** Please refer to the previous page for task explanation.

The top of Nikki's cake is shown below.

Nikki's Cake

She cut her cake into 16 equal pieces.

Nikki says that her cake is bigger than Marco's cake because it has more pieces.

C. EXPLAIN why Nikki is **not** correct.

She just has more pieces.

The student has given an insufficient explanation.

C-G.1 Response Score: 2

48. Marco bought a cake for his family.

The picture below shows the top of Marco's cake.

Marco's Cake

A. What word describes the shape of the top of Marco's cake?

PUT your answer in the **BLANK BELOW.**

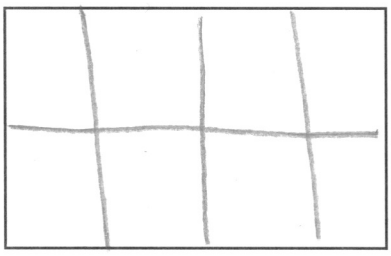
The student has given an incorrect answer.

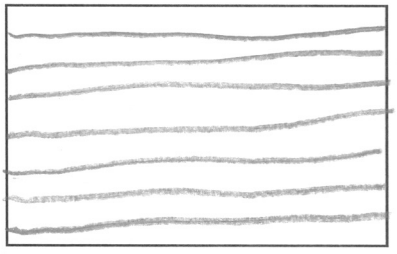
Answer: square

Marco cut the cake into 8 equal pieces.

B. SHOW two ways Marco could cut his cake into 8 equal pieces.

The student has given two correct answers.





GO ON

48. ***Continued.*** Please refer to the previous page for task explanation.

The top of Nikki's cake is shown below.

Nikki's Cake

She cut her cake into 16 equal pieces.

Nikki says that her cake is bigger than Marco's cake because it has more pieces.

C. EXPLAIN why Nikki is **not** correct.

Because Marco's pieces are bigger.

The student has given an incorrect explanation.

C-G.1 Response Score: 1

48. Marco bought a cake for his family.

The picture below shows the top of Marco's cake.

Marco's Cake

A. What word describes the shape of the top of Marco's cake?

PUT your answer in the **BLANK BELOW.**

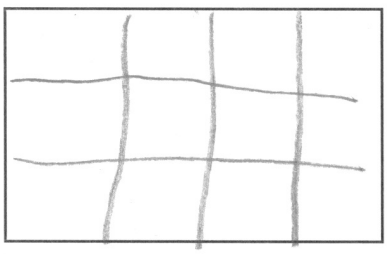
Answer: Rectangle

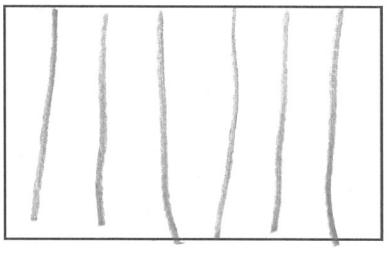
The student has given a correct answer.

Marco cut the cake into 8 equal pieces.

B. SHOW two ways Marco could cut his cake into 8 equal pieces.

The student has given incorrect answers.





GO ON

48. ***Continued.*** Please refer to the previous page for task explanation.

The top of Nikki's cake is shown below.

Nikki's Cake

She cut her cake into 16 equal pieces.

Nikki says that her cake is bigger than Marco's cake because it has more pieces.

C. EXPLAIN why Nikki is **not** correct.

NIKKI has a big cake with lots of pices

The student has given an incorrect explanation.

C-G.1 Response Score: 0

48. Marco bought a cake for his family.

The picture below shows the top of Marco's cake.

Marco's Cake

A. What word describes the shape of the top of Marco's cake?

PUT your answer in the **BLANK BELOW.**

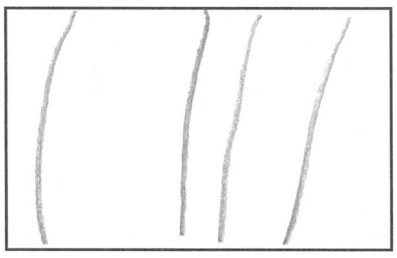
Answer: Square

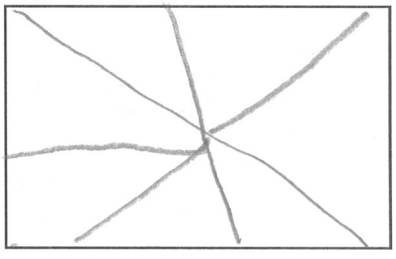
The student has given an incorrect answer.

Marco cut the cake into 8 equal pieces.

B. SHOW two ways Marco could cut his cake into 8 equal pieces.

The student has given incorrect answers.





GO ON

48. ***Continued.*** Please refer to the previous page for task explanation.

The top of Nikki's cake is shown below.

Nikki's Cake

She cut her cake into 16 equal pieces.

Nikki says that her cake is bigger than Marco's cake because it has more pieces.

C. EXPLAIN why Nikki is **not** correct.

I like big cakes.

The student has given an incorrect explanation.

FOURTH OPEN-ENDED QUESTION

D-M.2

Question 49
Page 1 of 2

Line Guide

Kari collected data from 25 of her classmates. She asked her classmates to tell her how many different cities they have each lived in.

None of Kari's classmates have lived in more than 4 different cities.

She created the table shown below to represent her data.

She did not include the information for the number of classmates who lived in 4 different cities.

Kari's Data

Number of Cities	Number of Classmates
1	12
2	8
3	3
4	?

A. How many classmates lived in 4 different cities?

PUT your answer in the **BLANK BELOW**.

SHOW or **EXPLAIN** all your work.

EQ

0 / 1000

Answer: ____ classmates

Review/End Test | Exit | Flag | Options | Next

Question 49
Page 2 of 2

Line Guide

Kari collected data from 25 of her classmates. She asked her classmates to tell her how many different cities they have each lived in.

None of Kari's classmates have lived in more than 4 different cities.

She created the table shown below to represent her data.

She did not include the information for the number of classmates who lived in 4 different cities.

Kari's Data

Number of Cities	Number of Classmates
1	12
2	8
3	3
4	?

Kari also made a bar graph to represent her data.

She only finished the bars for the students who lived in 1 city or 2 cities.

B. COMPLETE the bar graph shown below.

- **COMPLETE** the scale for the number of classmates.
- **DRAW** the bars to represent the number of students who have lived in 3 different cities and 4 different cities.

Review/End Test | Exit | Flag | Options | Back

ITEM-SPECIFIC SCORING GUIDELINE

Question #49

Grade 3

Assessment Anchor this item will be reported under:

M03.D-M.2—Represent and interpret data.

Specific Anchor Descriptor addressed by this item:

M03.D-M.2.1—Organize, display, and answer questions based on data.

Scoring Guide:

Score	In this item, the student –
4	Demonstrates a thorough understanding of representing and interpreting data by correctly solving problems and clearly explaining procedures.
3	Demonstrates a general understanding of representing and interpreting data by correctly solving problems and clearly explaining procedures with only minor errors or omissions.
2	Demonstrates a partial understanding of representing and interpreting data by correctly performing a significant portion of the required task.
1	Demonstrates minimal understanding of representing and interpreting data.
0	The response has no correct answer and insufficient evidence to demonstrate any understanding of the mathematical concepts and procedures as required by the task. Response may show only information copied from the question.
Non-Scorables	B – Blank R – Refusal K – Off task/topic F – Foreign language U – Illegible

Top Scoring Student Response And Training Notes:

Score	Description
4	Student earns 4 points.
3	Student earns 3.0 – 3.5 points.
2	Student earns 2.0 – 2.5 points.
1	Student earns 0.5 – 1.5 points. OR Student demonstrates minimal understanding of representing and interpreting data.
0	Response is incorrect or contains some correct work that is irrelevant to the skill or concept being measured.

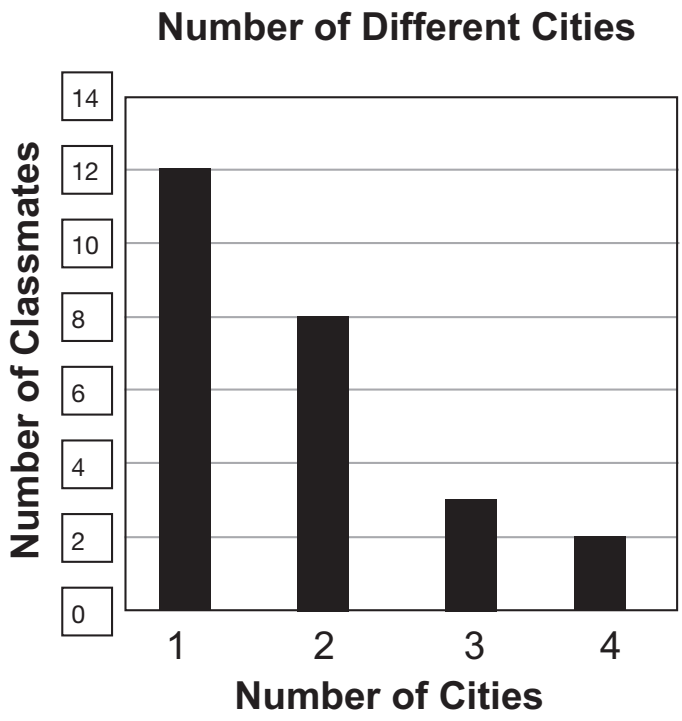
Question #49

Top Scoring Response:

Part A Answer	
What?	**Why?**
2 (classmates)	**Sample Work:** 25 – 12 – 8 – 3 = 2 **OR** **Sample Explanation:** First I found the total number of classmates already included in the table (23). Then, I subtracted that total from the number of classmates in the class (25) to get 2 classmates who lived in 4 different cities.

(2 score points)

1 point for correct answer
1 point for complete support
OR ½ point for correct but incomplete support

Part B Answer	
What?	**Why?**
 [Note: Carry over any error from Part A, unless Part A is blank]	

(2 score points)

1 point for correct labels
½ point for each correct bar

FOURTH OPEN-ENDED QUESTION RESPONSES

D-M.2 Response Score: 4

Question 49
Page 1 of 2

Line Guide

Kari collected data from 25 of her classmates. She asked her classmates to tell her how many different cities they have each lived in.

None of Kari's classmates have lived in more than 4 different cities.

She created the table shown below to represent her data.

She did not include the information for the number of classmates who lived in 4 different cities.

Kari's Data

Number of Cities	Number of Classmates
1	12
2	8
3	3
4	?

A. How many classmates lived in 4 different cities?

PUT your answer in the **BLANK BELOW**.

SHOW or **EXPLAIN** all your work.

EQ

12 + 8 + 3 = 23
25 - 23 = 2

27 / 1000

Answer: 2 classmates

The student has given a correct answer.
The student has shown complete support.

Review/End Test | Exit | Flag | Options | Next

Question 49
Page 2 of 2

Line Guide

Kari collected data from 25 of her classmates. She asked her classmates to tell her how many different cities they have each lived in.

None of Kari's classmates have lived in more than 4 different cities.

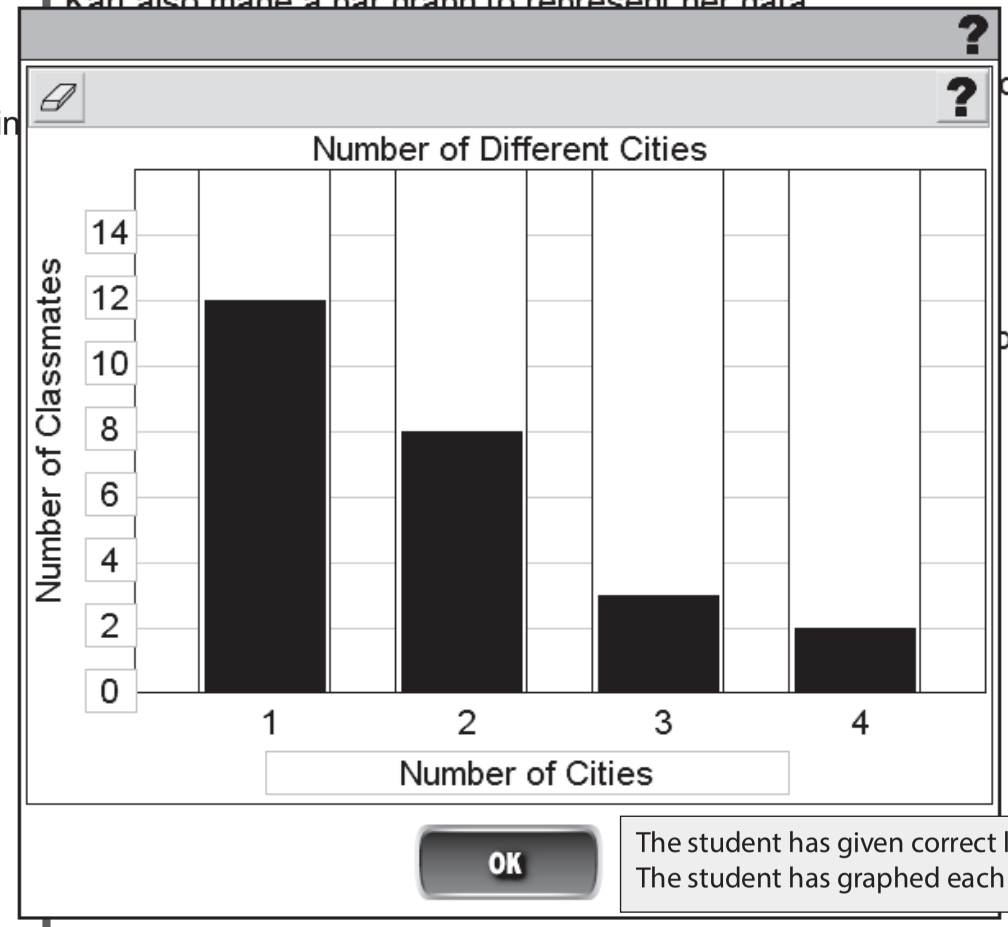
She created the table shown below to represent her data.

She did not include the information for the number of classmates who lived in 4 different cities.

Kari's Data

Number of Cities	Number of Classmates
1	12
2	8
3	3
4	?

Kari also made a bar graph to represent her data



The student has given correct labels.
The student has graphed each bar correctly.

Review/End Test | Exit | Flag | Options | Back

D-M.2 Response Score: 3

Question 49
Page 1 of 2

Line Guide

Kari collected data from 25 of her classmates. She asked her classmates to tell her how many different cities they have each lived in.

None of Kari's classmates have lived in more than 4 different cities.

She created the table shown below to represent her data.

She did not include the information for the number of classmates who lived in 4 different cities.

Kari's Data

Number of Cities	Number of Classmates
1	12
2	8
3	3
4	?

A. How many classmates lived in 4 different cities?

PUT your answer in the **BLANK BELOW**.

SHOW or **EXPLAIN** all your work.

EQ

I added them all and got 23 then I subtracted and got my answer 2
12 + 8 + 3 = 23
25 - 23 = 2

93 / 1000

Answer: 2 classmates

The student has given a correct answer.
The student has shown complete support.

Review/End Test | Exit | Flag | Options | Next

Question 49
Page 2 of 2

Line Guide

Kari collected data from 25 of her classmates. She asked her classmates to tell her how many different cities they have each lived in.

None of Kari's classmates have lived in more than 4 different cities.

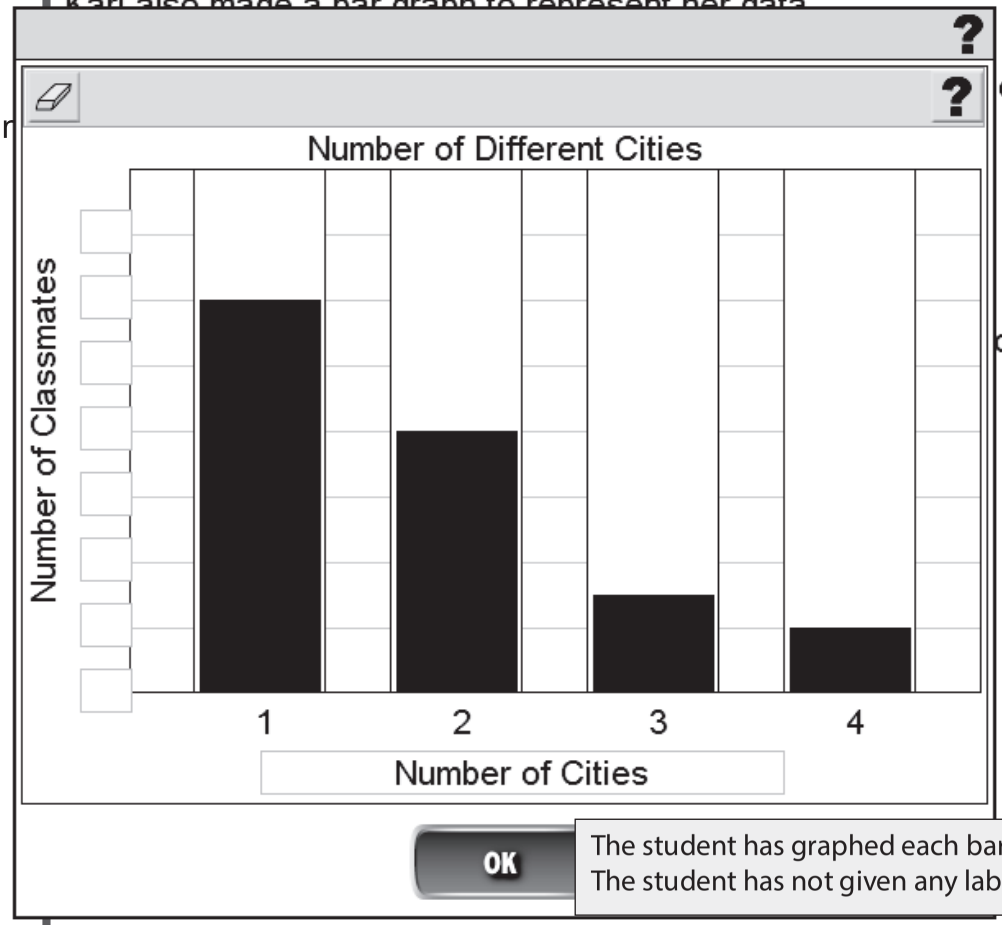
She created the table shown below to represent her data.

She did not include the information for the number of classmates who lived in 4 different cities.

Kari's Data

Number of Cities	Number of Classmates
1	12
2	8
3	3
4	?

Kari also made a bar graph to represent her data



OK

The student has graphed each bar correctly.
The student has not given any labels.

Review/End Test | Exit | Flag | Options | Back

D-M.2 Response Score: 2

Question 49
Page 1 of 2

Line Guide

Kari collected data from 25 of her classmates. She asked her classmates to tell her how many different cities they have each lived in.

None of Kari's classmates have lived in more than 4 different cities.

She created the table shown below to represent her data.

She did not include the information for the number of classmates who lived in 4 different cities.

Kari's Data

Number of Cities	Number of Classmates
1	12
2	8
3	3
4	?

A. How many classmates lived in 4 different cities?

PUT your answer in the **BLANK BELOW**.

SHOW or **EXPLAIN** all your work.

EQ

25-12=14
14-8=6
6-3=3

21 / 1000

Answer: 3 classmates

The student has given an incorrect answer due to a calculation error.
The student has shown complete support.

Review/End Test | Exit | Flag | Options | Next

Question 49
Page 2 of 2

Line Guide

Kari collected data from 25 of her classmates. She asked her classmates to tell her how many different cities they have each lived i

None of Kari's classmates have lived in more than 4 different cities.

She created the table shown below to represent her data.

She did not include the information for the number of classmates who lived in 4 different cities.

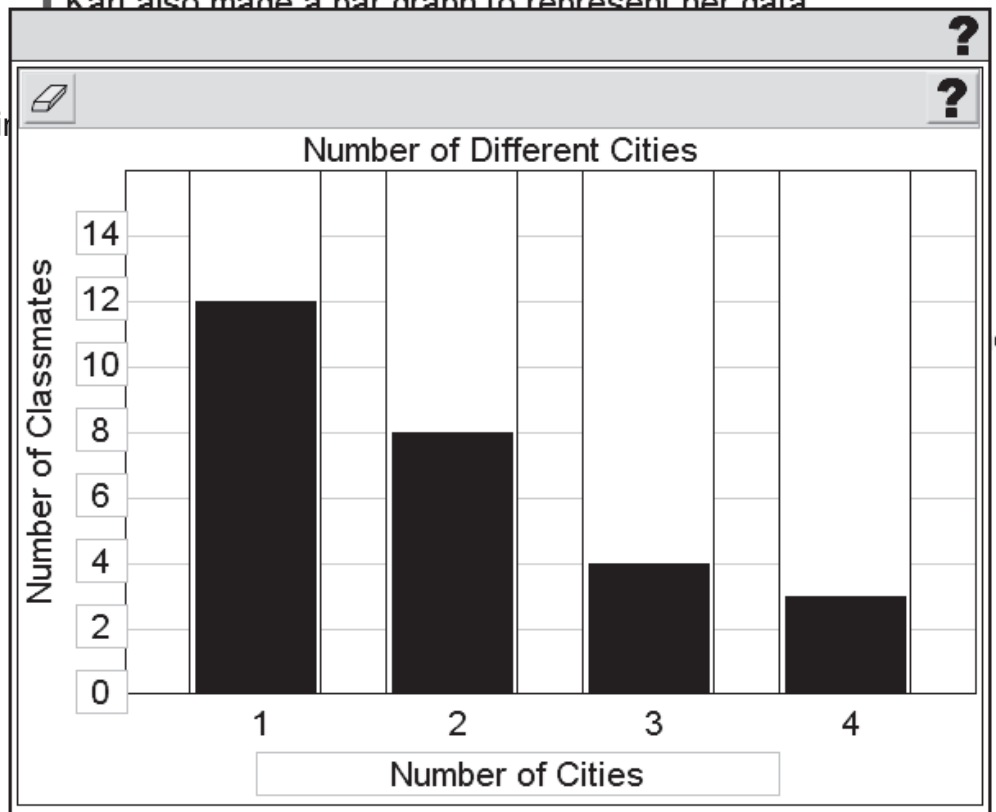
Kari's Data

Number of Cities	Number of Classmates
1	12
2	8
3	3
4	?

Kari also made a bar graph to represent her data

or

o



OK

The student has given correct labels.
The student has graphed one bar correctly, based on Part A.

Review/End Test | Exit | Flag | Options | Back

D-M.2 Response Score: 1

Question 49
Page 1 of 2

Line Guide

Kari collected data from 25 of her classmates. She asked her classmates to tell her how many different cities they have each lived in.

None of Kari's classmates have lived in more than 4 different cities.

She created the table shown below to represent her data.

She did not include the information for the number of classmates who lived in 4 different cities.

Kari's Data

Number of Cities	Number of Classmates
1	12
2	8
3	3
4	?

A. How many classmates lived in 4 different cities?

PUT your answer in the **BLANK BELOW**.

SHOW or **EXPLAIN** all your work.

EQ

i added them up
12 + 8 + 3 = 23

31 / 1000

Answer: 23 classmates

The student has given an incorrect answer.
The student has given incorrect support.

Review/End Test | Exit | Flag | Options | Next

Question 49
Page 2 of 2

Line Guide

Kari collected data from 25 of her classmates. She asked her classmates to tell her how many different cities they have each lived i

None of Kari's classmates have lived in more than 4 different cities.

She created the table shown below to represent her data.

She did not include the information for the number of classmates who lived in 4 different cities.

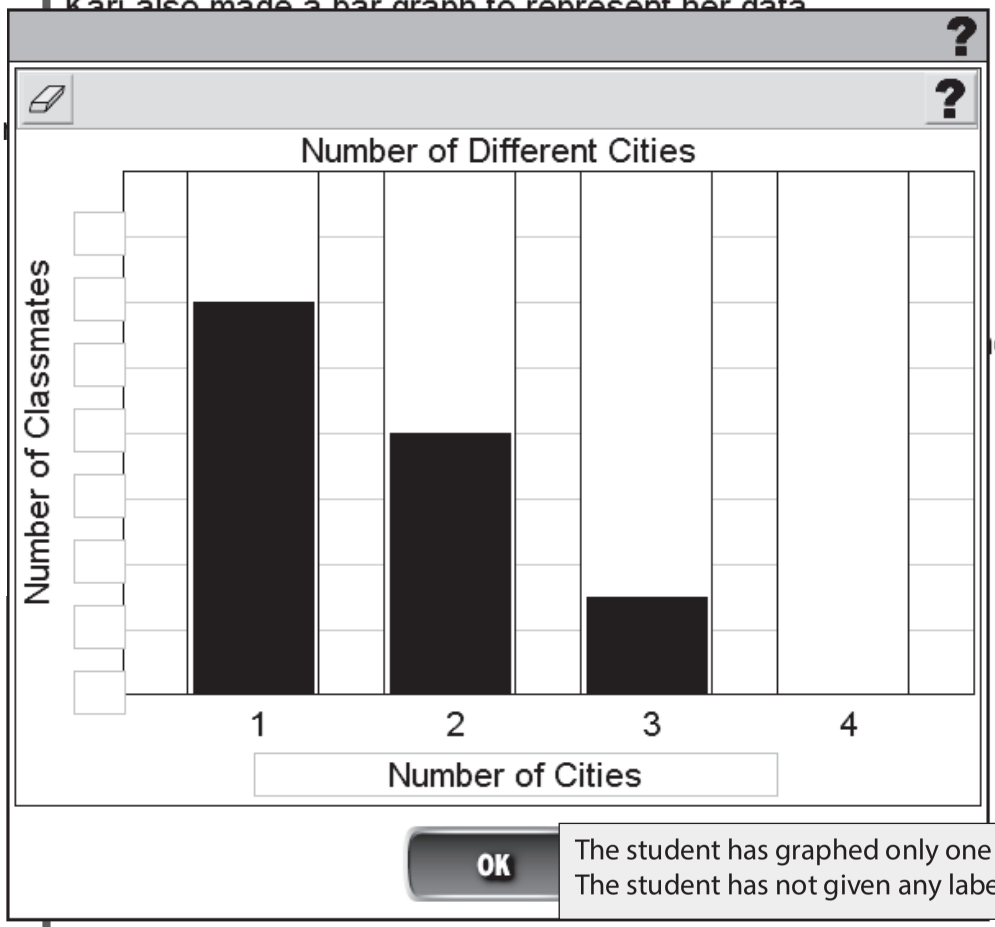
Kari's Data

Number of Cities	Number of Classmates
1	12
2	8
3	3
4	?

Kari also made a bar graph to represent her data

or

o



OK

The student has graphed only one bar correctly.
The student has not given any labels.

Review/End Test | Exit | Flag | Options | Back

D-M.2 Response Score: 0

Question 49
Page 1 of 2

Line Guide

Kari collected data from 25 of her classmates. She asked her classmates to tell her how many different cities they have each lived in.

None of Kari's classmates have lived in more than 4 different cities.

She created the table shown below to represent her data.

She did not include the information for the number of classmates who lived in 4 different cities.

Kari's Data

Number of Cities	Number of Classmates
1	12
2	8
3	3
4	?

A. How many classmates lived in 4 different cities?

PUT your answer in the **BLANK BELOW**.

SHOW or **EXPLAIN** all your work.

EQ

12
8
3
?

8 / 1000

Answer: ? classmates

The student has given an incorrect answer.
The student has given incorrect support.

Review/End Test | Exit | Flag | Options | Next

Question 49
Page 2 of 2

Line Guide

Kari collected data from 25 of her classmates. She asked her classmates to tell her how many different cities they have each lived i

None of Kari's classmates have lived in more than 4 different cities.

She created the table shown below to represent her data.

She did not include the information for the number of classmates who lived in 4 different cities.

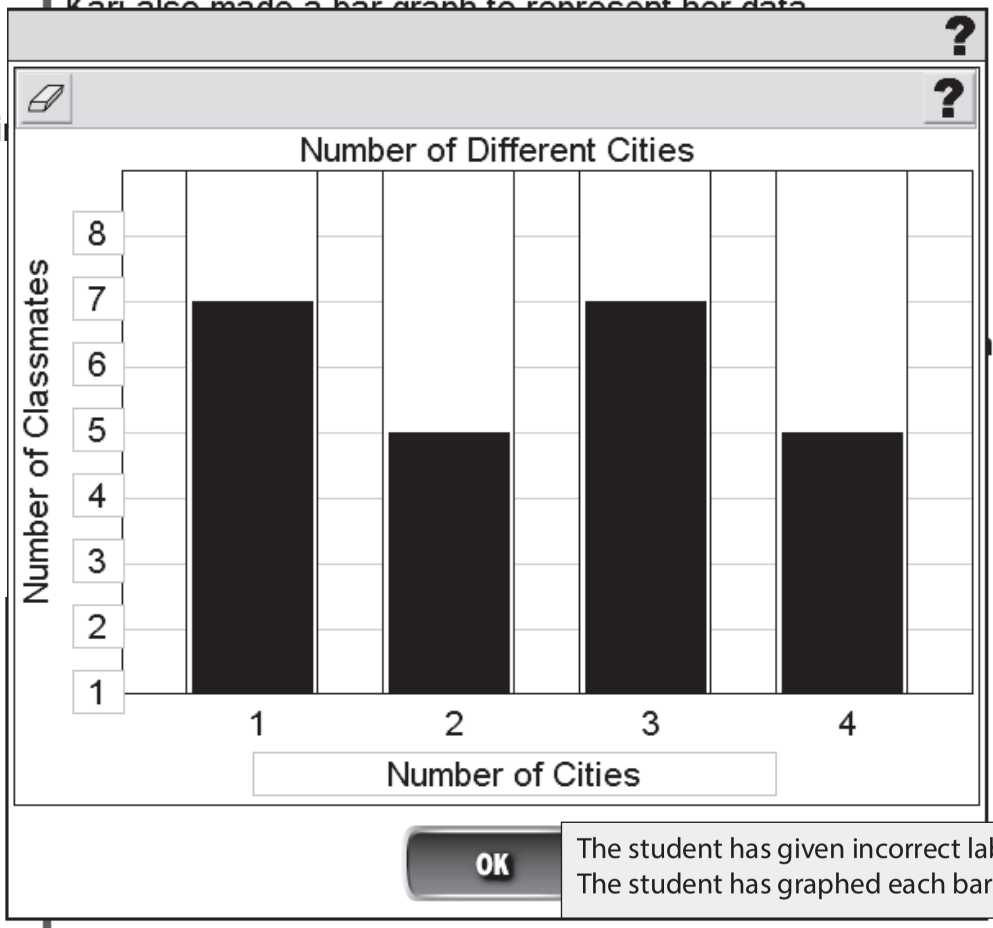
Kari's Data

Number of Cities	Number of Classmates
1	12
2	8
3	3
4	?

Kari also made a bar graph to represent her data

or

o



OK

The student has given incorrect labels.
The student has graphed each bar incorrectly.

Review/End Test | Exit | Flag | Options | Back

FIFTH OPEN-ENDED QUESTION

D-M.3

50. Jake has some pieces of wood.

Each piece of wood is in the shape of a rectangle.

Jake is painting a piece of wood that has side lengths of 2 feet and 6 feet.

A. What is the area, in square feet, of the piece of wood?

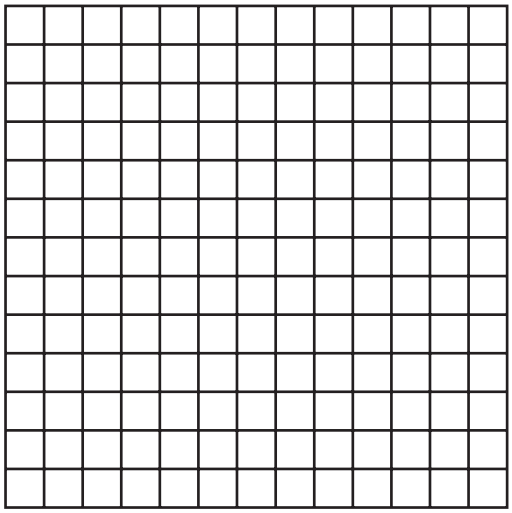
PUT your answer in the **BLANK BELOW**.

Answer: _____ square feet

Jake paints another piece of wood that has the same area as the first one.

None of the side lengths of the piece of wood is 2 feet.

B. **DRAW** and **SHADE** in a rectangle on the grid below to represent one possible size of the second piece of wood.



☐ = 1 square foot

GO ON

50. ***Continued***. Please refer to the previous page for task explanation.

C. Using multiplication, **EXPLAIN** how you know the rectangle you drew in **part B** has the same area as the first piece of wood.

D. Without using multiplication, **EXPLAIN** how you know the rectangle you drew in **part B** has the same area as the first piece of wood.

ITEM-SPECIFIC SCORING GUIDELINE

Question #50

Grade 3

Assessment Anchor this item will be reported under:

M03.D-M.3—Geometric measurement: understand concepts of area and relate area to multiplication and to addition.

Specific Anchor Descriptor addressed by this item:

M03.D-M.3.1—Find the areas of plane figures.

Scoring Guide:

Score	In this item, the student –
4	Demonstrates a thorough understanding of how area relates to multiplication and addition by correctly solving problems and clearly explaining procedures.
3	Demonstrates a general understanding of how area relates to multiplication and addition by correctly solving problems and clearly explaining procedures with only minor errors or omissions.
2	Demonstrates a partial understanding of how area relates to multiplication and addition by correctly performing a significant portion of the required task.
1	Demonstrates minimal understanding of how area relates to multiplication and addition.
0	The response has no correct answer and insufficient evidence to demonstrate any understanding of the mathematical concepts and procedures as required by the task. Response may show only information copied from the question.
Non-Scorables	B – Blank R – Refusal K – Off task/topic F – Foreign language U – Illegible

Top Scoring Student Response And Training Notes:

Score	Description
4	Student earns 4 points.
3	Student earns 3.0 – 3.5 points.
2	Student earns 2.0 – 2.5 points.
1	Student earns 0.5 – 1.5 points. OR Student demonstrates minimal understanding of how area relates to multiplication and addition.
0	Response is incorrect or contains some correct work that is irrelevant to the skill or concept being measured.

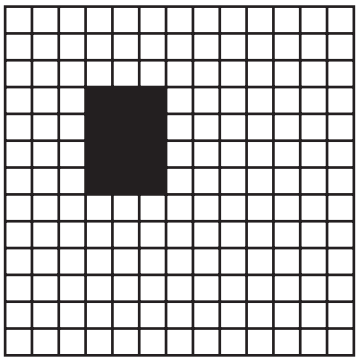
Question #50

Top Scoring Response:

Part A Answer	
What?	**Why?**
12 (square feet)	

(1 score point)

1 point for correct answer

Part B Answer	
What?	**Why?**
Answers may vary. Accept all rectangles with an area of 12 squares such that neither side length is equal to 2 feet. **Sample Response:**  ☐ = 1 square foot [Note: Carry over any error from Part A]	

(1 score point)

1 point for correct answer

Part C Answer	
What?	**Why?**
	Sample Explanation: The area of the second piece of wood is $3 \times 4 = 12$ square feet, which is the same as the area of the first piece of wood. [Note: Carry over any errors from Part A and Part B]

(1 score point)

1 point for complete explanation
OR ½ point for correct but incomplete explanation

Part D Answer	
What?	**Why?**
	Sample Explanation: I counted the squares inside the rectangle and there were 12 of them. [Note: Carry over any errors from Part A and Part B]

(1 score point)

1 point for complete explanation
OR ½ point for correct but incomplete explanation

FIFTH OPEN-ENDED QUESTION RESPONSES

D-M.3 Response Score: 4

50. Jake has some pieces of wood.

Each piece of wood is in the shape of a rectangle.

Jake is painting a piece of wood that has side lengths of 2 feet and 6 feet.

A. What is the area, in square feet, of the piece of wood?

PUT your answer in the **BLANK BELOW**.

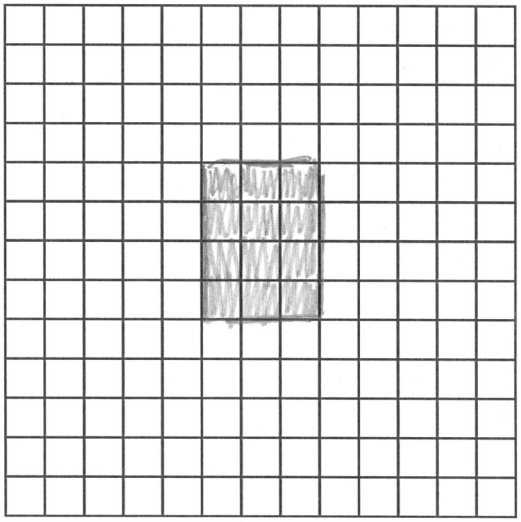
Answer: 12 square feet

The student has given a correct answer.

Jake paints another piece of wood that has the same area as the first one.

None of the side lengths of the piece of wood is 2 feet.

B. **DRAW** and **SHADE** in a rectangle on the grid below to represent one possible size of the second piece of wood.



☐ = 1 square foot

The student has given a correct answer.

GO ON

50. ***Continued***. Please refer to the previous page for task explanation.

C. Using multiplication, **EXPLAIN** how you know the rectangle you drew in **part B** has the same area as the first piece of wood.

Because 3 x 4 = 12 and so does 2 x 6 = 12 they are the same.

The student has given a complete explanation.

D. Without using multiplication, **EXPLAIN** how you know the rectangle you drew in **part B** has the same area as the first piece of wood.

If you count the squares there are 12 of them.

The student has given a complete explanation.

D-M.3 Response Score: 3

50. Jake has some pieces of wood.

Each piece of wood is in the shape of a rectangle.

Jake is painting a piece of wood that has side lengths of 2 feet and 6 feet.

A. What is the area, in square feet, of the piece of wood?

PUT your answer in the **BLANK BELOW**.

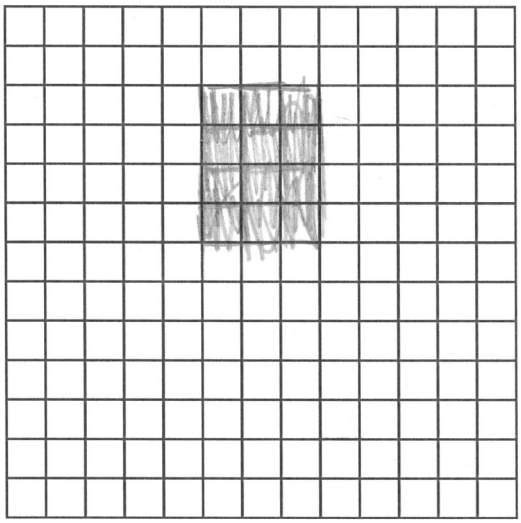
Answer: 12 square feet

The student has given a correct answer.

Jake paints another piece of wood that has the same area as the first one.

None of the side lengths of the piece of wood is 2 feet.

B. **DRAW** and **SHADE** in a rectangle on the grid below to represent one possible size of the second piece of wood.



☐ = 1 square foot

The student has given a correct answer.

GO ON

50. ***Continued***. Please refer to the previous page for task explanation.

C. Using multiplication, **EXPLAIN** how you know the rectangle you drew in **part B** has the same area as the first piece of wood.

They both equal 12 because $6 \times 2 = 12$ and $3 \times 4 = 12$.

The student has given a complete explanation.

D. Without using multiplication, **EXPLAIN** how you know the rectangle you drew in **part B** has the same area as the first piece of wood.

I counted the squares.

The student has given a correct but incomplete explanation.

D-M.3 Response Score: 2

50. Jake has some pieces of wood.

Each piece of wood is in the shape of a rectangle.

Jake is painting a piece of wood that has side lengths of 2 feet and 6 feet.

A. What is the area, in square feet, of the piece of wood?

PUT your answer in the **BLANK BELOW**.

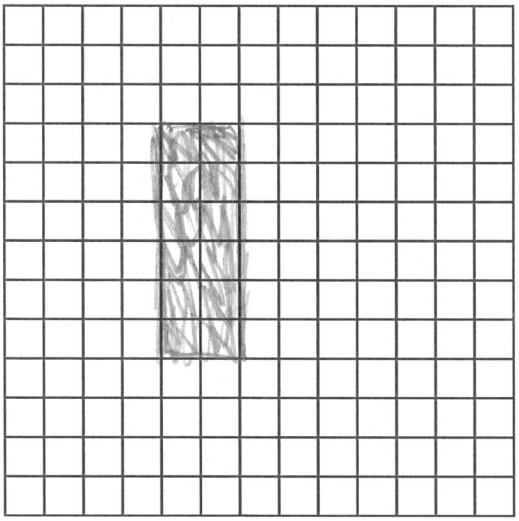
Answer: 12 square feet

The student has given a correct answer.

Jake paints another piece of wood that has the same area as the first one.

None of the side lengths of the piece of wood is 2 feet.

B. **DRAW** and **SHADE** in a rectangle on the grid below to represent one possible size of the second piece of wood.



☐ = 1 square foot

The student has given an incorrect answer.

GO ON

50. ***Continued***. Please refer to the previous page for task explanation.

C. Using multiplication, **EXPLAIN** how you know the rectangle you drew in **part B** has the same area as the first piece of wood.

2 times 6 equals 12

The student has given a correct answer but an incomplete explanation.

D. Without using multiplication, **EXPLAIN** how you know the rectangle you drew in **part B** has the same area as the first piece of wood.

It has the same number there are 12 squares.

The student has given a complete explanation.

D-M.3 Response Score: 1

50. Jake has some pieces of wood.

Each piece of wood is in the shape of a rectangle.

Jake is painting a piece of wood that has side lengths of 2 feet and 6 feet.

A. What is the area, in square feet, of the piece of wood?

PUT your answer in the **BLANK BELOW**.

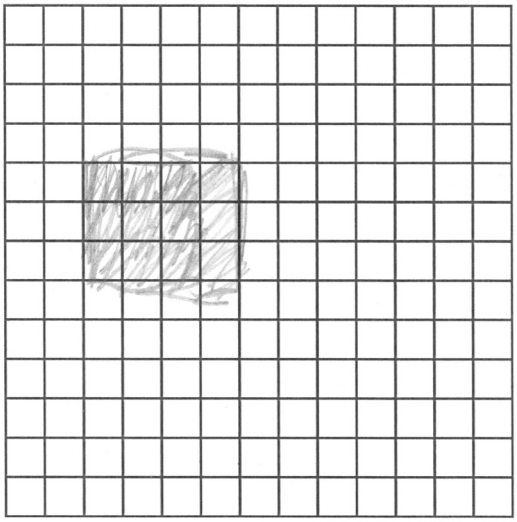
Answer: 8 square feet

The student has given an incorrect answer.

Jake paints another piece of wood that has the same area as the first one.

None of the side lengths of the piece of wood is 2 feet.

B. **DRAW** and **SHADE** in a rectangle on the grid below to represent one possible size of the second piece of wood.



☐ = 1 square foot

The student has given a correct answer.

GO ON

50. ***Continued***. Please refer to the previous page for task explanation.

C. Using multiplication, **EXPLAIN** how you know the rectangle you drew in **part B** has the same area as the first piece of wood.

It is the same area.

The student has given an incorrect explanation.

D. Without using multiplication, **EXPLAIN** how you know the rectangle you drew in **part B** has the same area as the first piece of wood.

It is a rectangle.

The student has given an incorrect explanation.

D-M.3 Response Score: 0

50. Jake has some pieces of wood.

Each piece of wood is in the shape of a rectangle.

Jake is painting a piece of wood that has side lengths of 2 feet and 6 feet.

A. What is the area, in square feet, of the piece of wood?

PUT your answer in the **BLANK BELOW**.

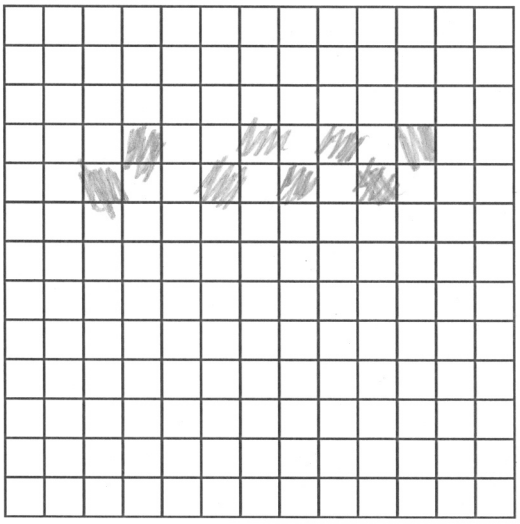
Answer: 8 square feet

The student has given an incorrect answer.

Jake paints another piece of wood that has the same area as the first one.

None of the side lengths of the piece of wood is 2 feet.

B. **DRAW** and **SHADE** in a rectangle on the grid below to represent one possible size of the second piece of wood.



☐ = 1 square foot

The student has given an incorrect answer.

GO ON

50. ***Continued***. Please refer to the previous page for task explanation.

C. Using multiplication, **EXPLAIN** how you know the rectangle you drew in **part B** has the same area as the first piece of wood.

2 x 6 = 8

The student has given an incorrect explanation.

D. Without using multiplication, **EXPLAIN** how you know the rectangle you drew in **part B** has the same area as the first piece of wood.

IDK

The student has given an incorrect explanation.

PSSA Grade 3 Mathematics
Item and Scoring Sampler